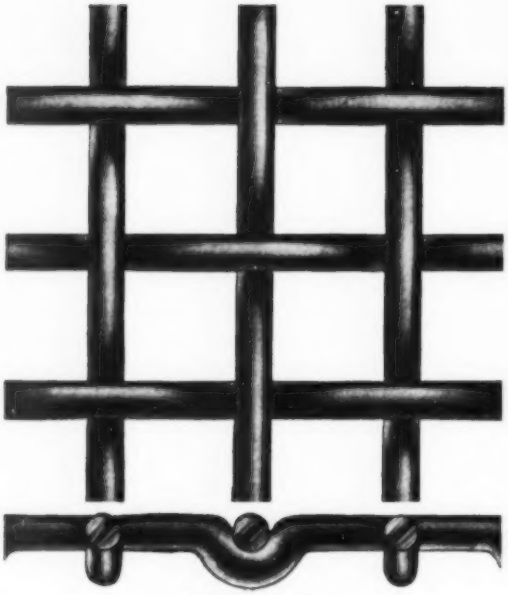
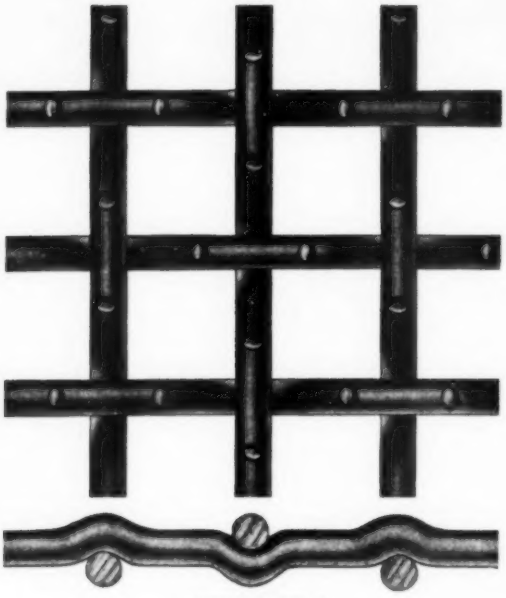
PIT AND QUARRY



STA-SMOOTH

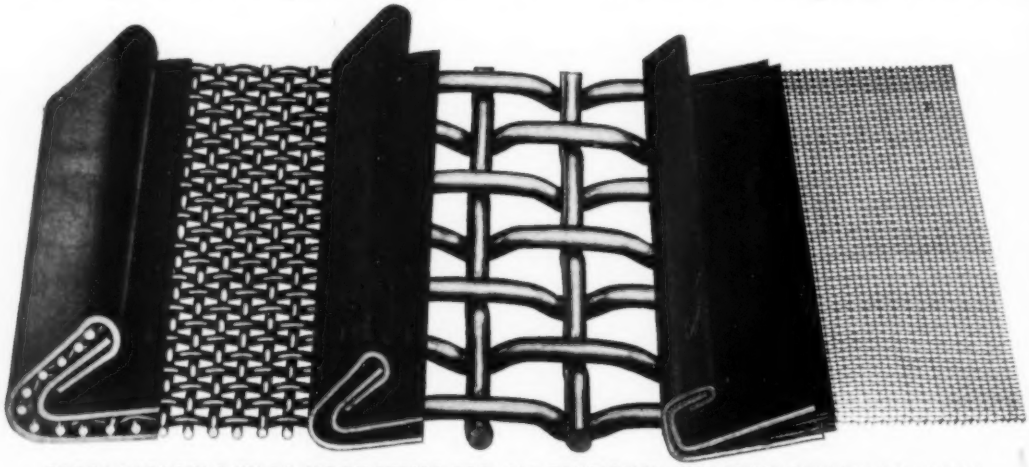


ARCH-CRIMP

SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

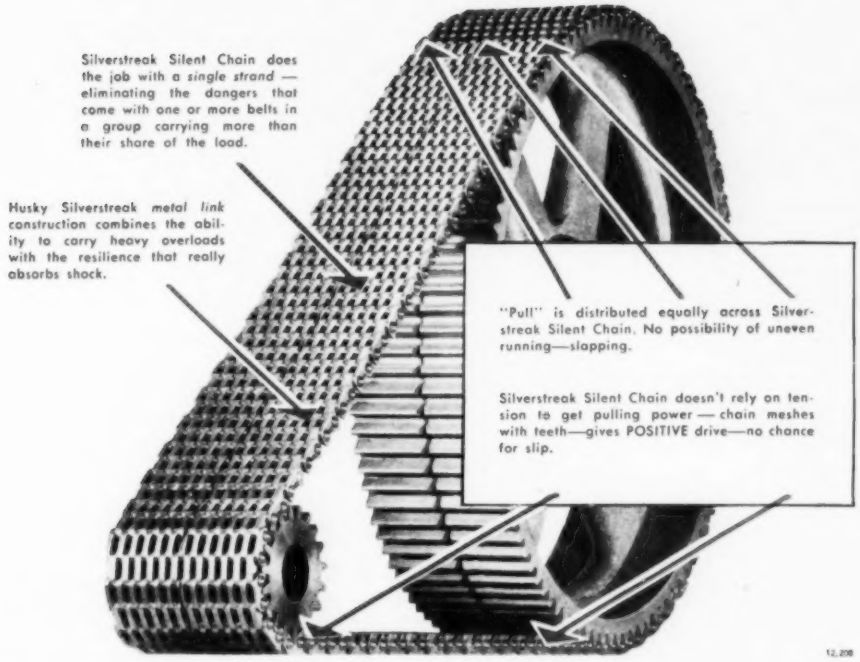


ORDER LUDLOW-SAYLOR HOOK-STRIPS FOR ALL TENSIONED VIBRATING-SCREEN SECTIONS.

THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. ST. LOUIS 10, MO.

SLIP-PROOF
SLAP-PROOF
SHOCK-PROOF


Silverstreak Silent Chain does the job with a *single strand* — eliminating the dangers that come with one or more belts in a group carrying more than their share of the load.
Husky Silverstreak *metal link* construction combines the ability to carry heavy overloads with the resilience that really absorbs shock.
"Pull" is distributed equally across Silverstreak Silent Chain. No possibility of uneven running—slapping.
Silverstreak Silent Chain doesn't rely on tension to get pulling power — chain meshes with teeth—gives POSITIVE drive—no chance for slip.
12.208

Get Full RPM Transmission With LINK-BELT Silverstreak Silent Chain Drives

Yes, get the amazing, trouble-free efficiency of 98.2%. A standard of operation that continues throughout the long, long life of the drive. More than this — every rating and design is backed by a record of *proven performance*. And every chain is engineered for the job. You conserve space, too — for Link-Belt Silverstreak Silent Chain Drives operate efficiently on short centers. Ratios as high as 10 to 1 are commonly used.

Little wonder, then, that so many concerns to whom top operation efficiency and rugged dependability are a must, standardize with Link-Belt Silverstreak Silent Chain Drives.

LINK-BELT COMPANY, Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices in principal cities.

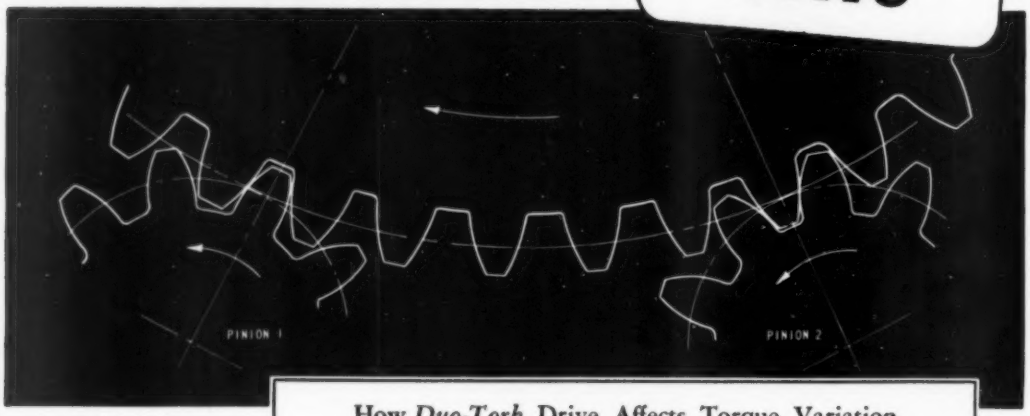
LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

PIT AND QUARRY, February, 1951. Vol. 43, No. 8. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

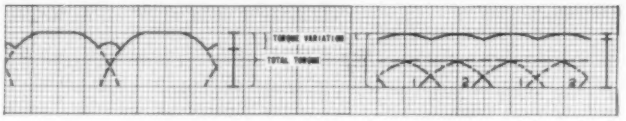
Much Longer Life FOR ROTARY KILN DRIVES WITH...

DUO-TORK *(STAGGERED PINION)* **Drive**



Duo-Tork drive eliminates "hard" gear tooth impulses. Pinion tooth in contact on pinion No. 1 is on centerline between gear tooth centers. Same tooth on pinion No. 2 is staggered — one-half tooth pitch past centerline.

How *Duo-Tork* Drive Affects Torque Variation



Single Drive with New A-C Gearing. *Duo-Tork* Drive with New A-C Gearing.

NEW *DUO-TORK* drive is a staggered pinion dual drive for large rotary kilns developed by Allis-Chalmers to give you twice as many gear tooth contacts per kiln revolution as a single drive (see above). The result is a smooth drive that protects the kiln, bearings, gears, reducer, shafting, and motor from destructive vibration.

Pinions are staggered so that they are one-half tooth pitch out of step. Vibration caused by gear tooth contact is practically eliminated. Each tooth impulse has only half the force of a comparable single drive. And *Duo-Tork* drive assures continuous production because kiln can be operated at reduced capacity using only half the drive.

Gear tooth shape has been improved, too. *Duo-Tork* drive utilizes the new 20° involute spur gear with long addendum pinion and short addendum gear tooth. The pinion tooth *rolls* evenly on gear tooth — *smooth, even* distribution of force from pinion to gear!

Other advantages of *Duo-Tork* drive:

- **Eliminates need for large special reducers and flexible couplings.**
- **Lower tooth pressures mean better gear lubrication, with no scoring or "wiping" of gear teeth.**
- **Maximum economy.** ***Duo-Tork*** **drive is less costly than single drive of over 125 hp. And, because wear is reduced, gearing lasts longer.**

For more facts, contact the A-C representative in your area or write Allis-Chalmers, Milwaukee 1, Wis. A-3280

ALLIS-CHALMERS

Duo-Tork and *Texrope* are Allis-Chalmers trademarks.

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Motors

Controls

Texrope Drives

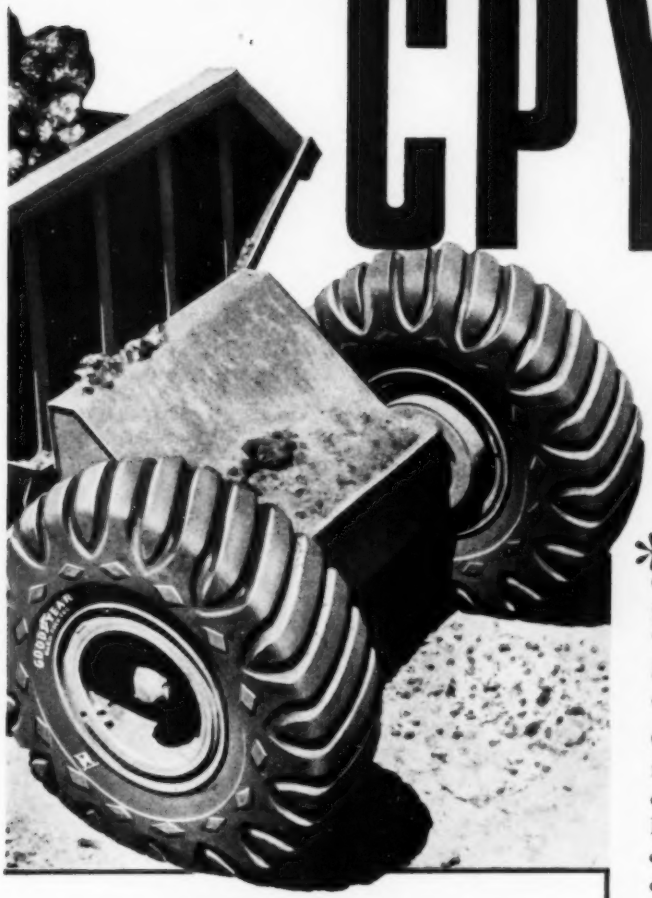
Vibrating Screens

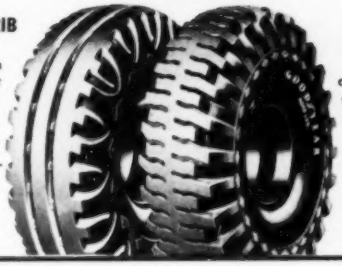
Jaw Crushers

Kilns, Coolers, Dryers

CPY*

tells you why it pays always to BUY and SPECIFY Goodyear





HARD ROCK RIB
Companion tire for front wheels in rock work—easier steering, smooth rolling, same tough cord body, same rugged shoulder and sidewall as Hard Rock Lug.

ROAD LUG
Remarkable dual-purpose tire operates both OFF and ON the road. Combines off-the-road toughness and traction with on-the-road mileage and economy.

Road Lug—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

* **Cost per yard**—the all-important factor that determines your profits. The *deciding* factor that makes *and keeps* Goodyear tires the First Choice of profit-minded quarry operators!

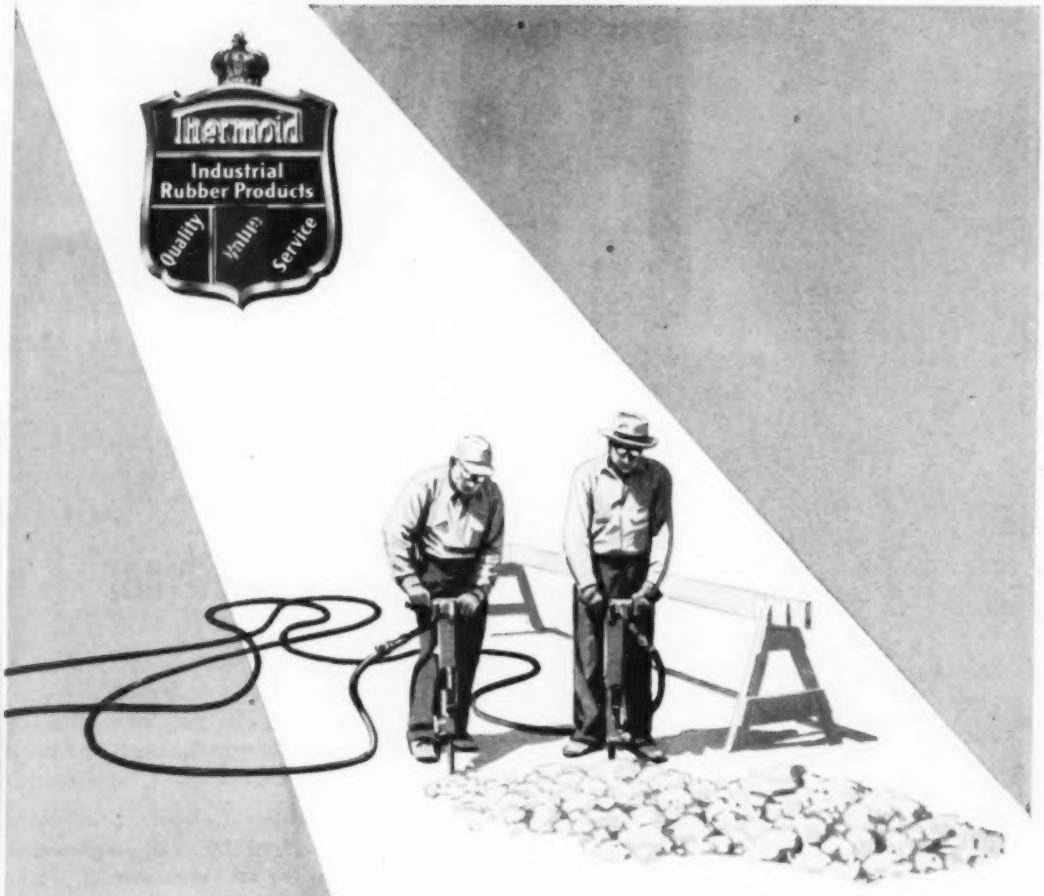
Outstanding example: Goodyear's famous Hard Rock Lug—super-tough champ for all types of rock work. Extra-thick undertread protects its extra-tough carcass against bruising—extra-heavy tread and sidewalls are armored by massive lug bars against cuts and rips—self-cleaning tread provides top traction.

All these extras add up to extra-low CPY—so much lower cost per yard, in fact, that operators find that Goodyear's Hard Rock Lug has no equal for cutting costs on tire-killing rock work.

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND



Hose built for the job! That's the reason for Thermoid's excellent reputation among users of hose.

Our customers know they can rely on Thermoid's recommendations for their requirements . . . whether it's for air, water, suction, sand and concrete discharge, dredging sleeves, jetting hose—or any of the many other types of Thermoid hose built for the mining and construction industries.

And men who buy these quality products like the service they get from Thermoid's experienced distributors and sales representatives—and their intimate knowledge of the *buyer's* problems.

Get the hose built for *your* job. Specify Thermoid.

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

Start with a REAL ROCK SHOVEL ...and you'll be sure to finish the job!

If you have a real Rock Shovel you'll never have to worry about output in any kind of digging. Start with a real Rock Shovel and you'll be sure to finish the job.

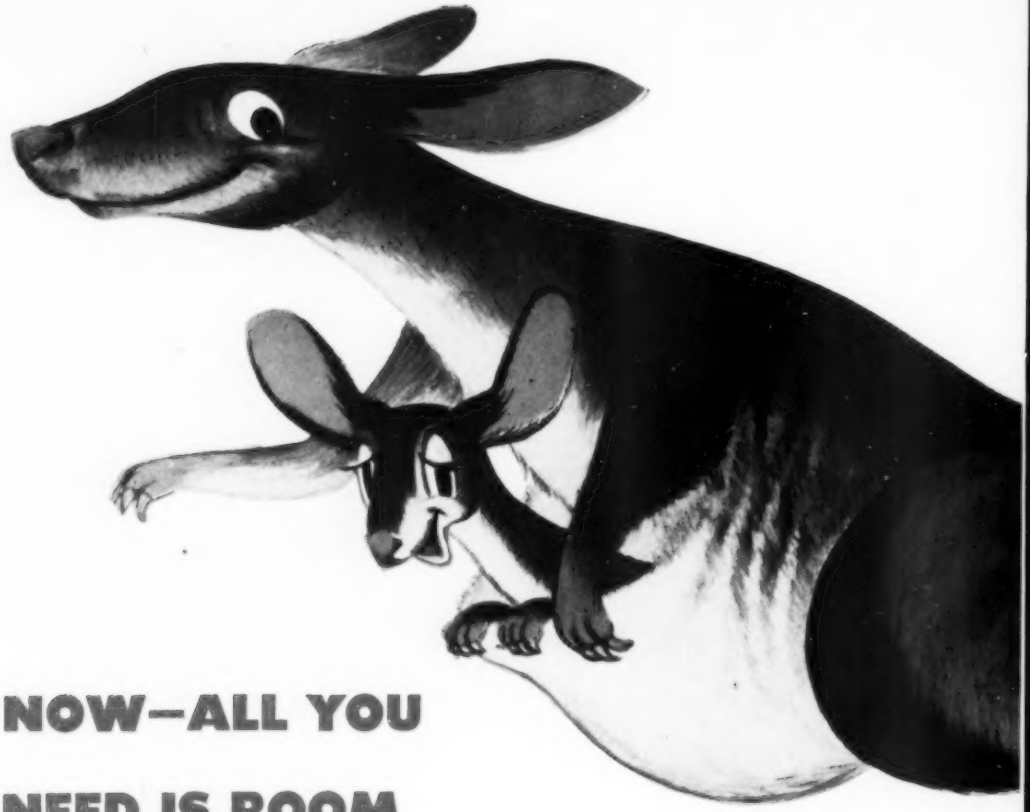
Northwests are proved Rock Shovels with advantages a Rock Shovel should have.

The Northwest Dual Independent Crowd utilizes force other independent crowd shovels waste. Cast Steel Machinery Bases and Cast Steel Machinery Side Frames are better able to take the strains of tough digging. The Cushion Clutch relieves all parts under power from shock loads and increases machine life and cable life. The "Feather-Touch" Clutch Control increases output, assuring easier operation and a *feel of the load* that makes it easier to handle the big ones. These are just a few of the many advantages you won't find in other shovels—just a few of the features that make money in the heart of the Rock Job. Put a Northwest in the *Key Spot* and be sure of the kind of service that makes one out of every three Northwests sold a repeat order.

NORTHWEST ENGINEERING CO., 1515 Field Bldg., 135 South LaSalle St., Chicago 3, Ill.

NORTHWEST

Convertible for any Mining Material Handling or Excavation Problem



NOW—ALL YOU NEED IS ROOM FOR ONE!

One Multi-Purpose Gear Lubricant—
Mobilube GX—Protects All Types of Automotive Gears—
Cuts Inventory—Saves Storage Space

Yes, you no longer need to order, handle and store a dozen different types and grades of lubricants for your automotive gears.

Today, a single, multi-purpose gear lubricant—*Mobilube GX*—fully protects all automotive gear units—hypoid—spiral bevel—helical—spur . . . eliminates chances of error in their lubrication . . . greatly simplifies application.

Mobilube GX guards gears against corrosion, rust and wear. It does not channel . . . resists foaming . . . will not form deposits or separate in storage. It makes gears last longer and shift easier . . . has unusually long service life.

There are several SAE grades of *Mobilube GX* to satisfy all your gear requirements. Why not order a supply *today?*

Here's Practical Help For Contractors . . .

SOCONY-VACUUM

Socony-Vacuum gives you . . .

- Help on maintenance problems.
- Individual, tested lubrication schedules.
- Advice on correct application of lubricants, proper handling and storing.
- One source of supply—available everywhere.
- Simplified inventory—with . . .

1. **DELVAC OILS**—for all gasoline and automotive-Diesel engines.
2. **MOBILUBE GX**—for all enclosed gears—manually operated transmissions, rear axles and final drives.
3. **MOBILGREASE**—in grades and types for proper lubrication of all chassis parts and engine accessories.

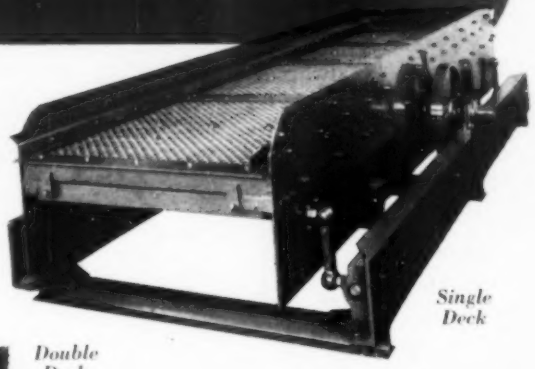
CORRECT LUBRICATION

for Contractors

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL COMPANY, INC.
MAGNOLIA PETROLEUM COMPANY • GENERAL PETROLEUM CORPORATION

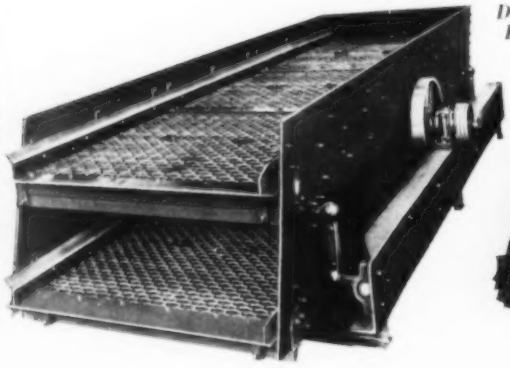
Prepare NOW for more
PROFITABLE AGGREGATE PRODUCTION

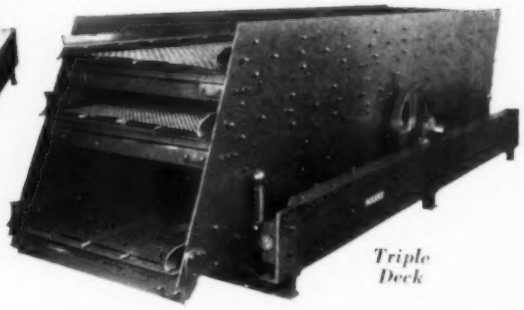
Pictured are 3 of over 300 Seco models for every screening need from scalping stone to screening ag-lime. Every Seco vibrating screen has patented Seco equalizer assembly for proven performance.



Single Deck

Double Deck



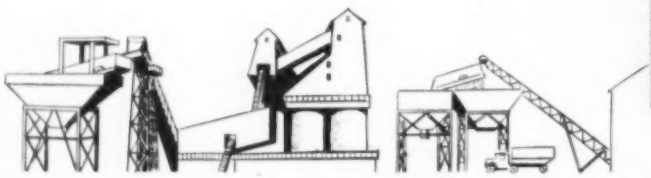


Triple Deck

Now is the time to replace obsolete or inadequate equipment with *performance-proven* Seco vibrating screens. Yes, every screening operation you entrust to a smooth Seco will result in better sizing, greater tonnages . . . and a real vacation from maintenance worries. In a few short words . . . *more* profit per ton for you.

For information see your local Seco Distributor

Get the facts! Send for Seco Catalog #203 and the name of your nearest Seco dealer.



SECO

TRUE CIRCULAR ACTION

VIBRATING SCREENS

SCREEN EQUIPMENT CO., Inc.

1750 Walden Ave., Buffalo 21, N. Y.

In Canada: United Steel Corp., Toronto, Ontario

Torrington Bearings prove reliability in Lippmann jaw crushers

Never a bearing failure with proper maintenance—so report *Lippmann* engineers of Torrington Roller Bearings used in *Lippmann* Grizzly King Jaw Crushers. This service record has been earned in the toughest applications, like the 36 x 48 Grizzly King at the Pelham, Ala., plant of McCullough Industries.

Day-in and day-out, Torrington Roller Bearings help *Lippmann* Crushers handle high production schedules. These precision bearings provide line contact for maximum capacity. Heavy radial and thrust loads developed in continuous operation are handled with ease.

Help your equipment benefit from uninterrupted high production and on-the-job reliability by specifying Torrington Bearings.

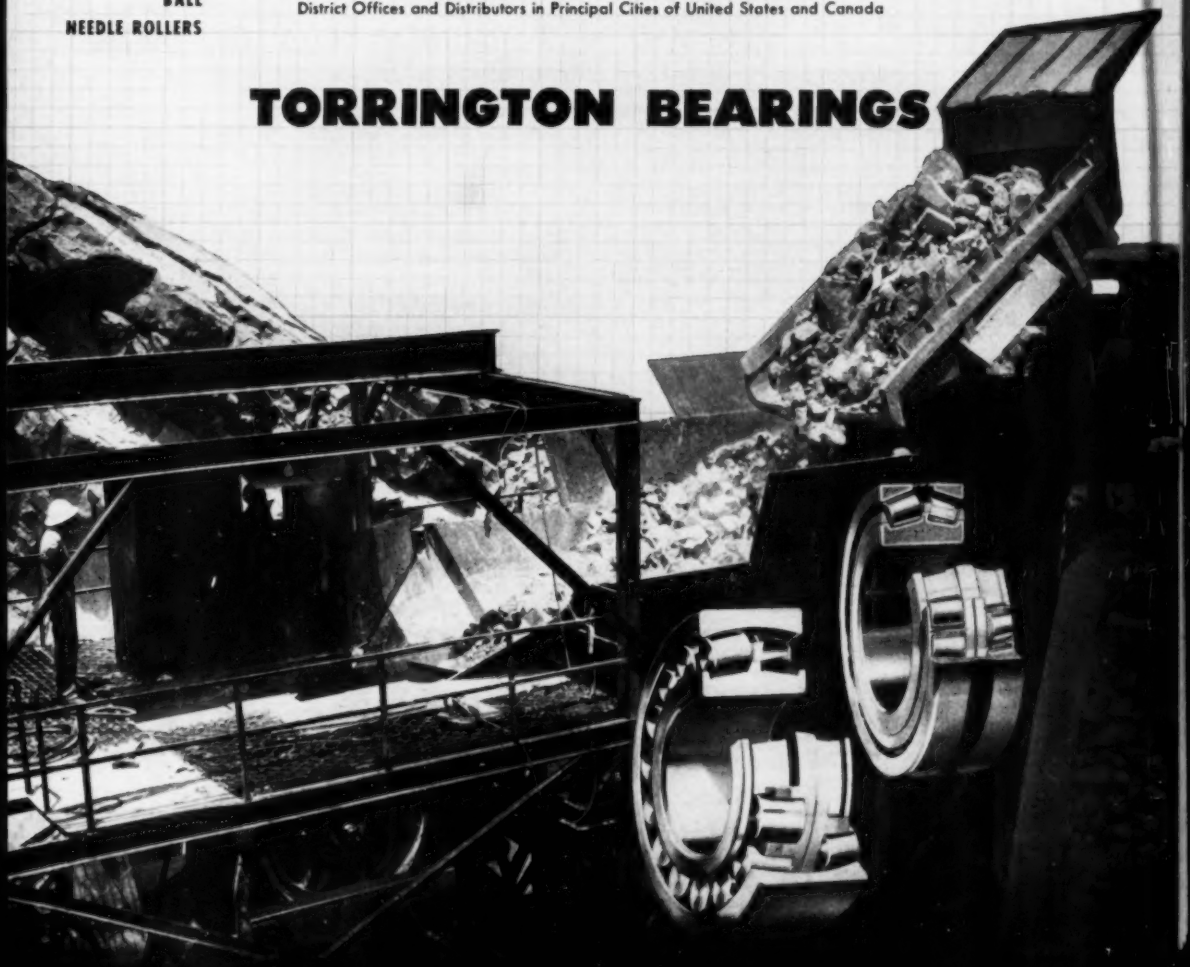
SPHERICAL ROLLER
TAPERED ROLLER
STRAIGHT ROLLER
NEEDLE
BALL
NEEDLE ROLLERS

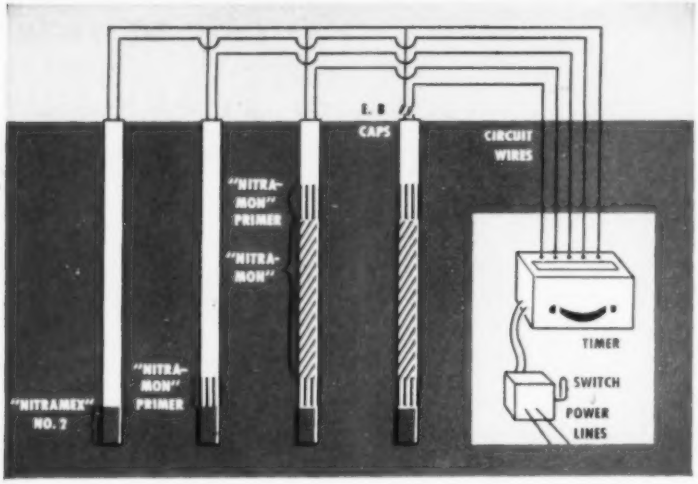
THE TORRINGTON COMPANY

South Bend 21, Ind. • Torrington, Conn.

District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON BEARINGS





"You get better breakage, less vibration with this safe quarry blasting plan"

It's easy to follow...economical to use:

1 DU PONT "NITRAMEX" NO. 2 is loaded at bottom of well drill holes, if and when hard rock is encountered.

2 DU PONT "NITRAMON" PRIMER with Primacord attached is next loaded. Primacord is extended above collar of the hole.

3 BALANCE OF "NITRAMON" CHARGE is loaded, with additional primers as required, and second Primacord down line is extended above collar. Holes are stemmed.

4 DU PONT BLASTING TIMER is located a safe distance from blast. Circuit wires are attached and extended to drill holes.

5 TWO ELECTRIC BLASTING CAPS in series are taped to a short length of Primacord, and circuits are tested as Cap wires are connected to circuit wires from Timer.

6 FINALLY, just before time for the blast, the short length of Primacord is attached to the downlines. Timer is connected through remote switch to power line, completing the hookup.

IT'S SAFER than conventional methods because the plan utilizes "Nitramon"* and "Nitramex"** . . . the safest blasting agents known. They can't be detonated by commercial blasting caps, fire, friction, falling objects, or even the impact of ball ammunition. But charges are readily detonated with a "Nitramon" Primer, itself relatively insensitive. Primers are initiated with Primacord. No caps are placed in the drill holes.

IT'S MORE ECONOMICAL because charges can be loaded far in advance of firing and also because the unusual "peeling" action at split-second intervals greatly reduces vibration, improves fragmentation and reduces back break. Wet conditions are no problem with "Nitramon" and "Nitramex" No. 2. There are no headaches because these blasting agents contain no nitroglycerin.

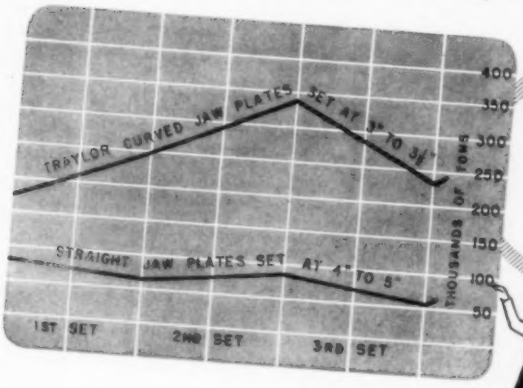
ASK THE DU PONT Explosives representative in your area for complete information about this safe, efficient and economical plan for quarry blasting, or write: E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

*Reg. Trade-mark for nitrocarbonitrate blasting agent.
**Trade-mark for Du Pont ammonium nitrate blasting agent.

DU PONT EXPLOSIVES
BLASTING SUPPLIES AND ACCESSORIES

DUPONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Traylor Curved Jaw Crusher Plates outlast ordinary plates almost 3 to 1



This chart is based on actual records kept on a 36" x 48" jaw crusher. Operating at a setting of 4" to 5", the average life of straight jaw plates was 96,500 tons. When fitted with Traylor smooth-faced, *curved* jaw plates, this same crusher averaged 276,724 tons per set . . . *at a setting of 3" to 3½".* Plate life was increased almost 3 to 1!

No choking . . . no packing . . . stops power waste. Crushing force is used with greater efficiency to produce a more uniform product with fewer waste fines.

Traylor Curved Jaw Crusher Plates . . . standard equipment on all Traylor Jaw Crushers . . . can be installed in many other crushers to transform them into modern, up-to-date primary breakers. Traylor's Curved Crushing Surfaces cut costs of primary stone reduction in *many* ways . . . outlast ordinary plates as much as 3 *to* 1. If you want to increase the efficiency of your plant, investigate Traylor Curved Jaw Plates today.

Traylor

Rotary Kilns, Coolers and Dryers · Grinding Mills
Jaw, Reduction and Gyratory Crushers · Crushing Rolls

MAIL COUPON
to get full details.

TRAYLOR ENGINEERING & MANUFACTURING CO.
318 MILL ST., ALLENTOWN, PA.

I want to see how easily Traylor Curved Jaw Plates can be installed in my present crusher.

*Name*_____

*Company*_____

*Address*_____

_____

SALES OFFICES: New York, N.Y.; Chicago, Ill., Los Angeles, Calif.
Canadian Mfrs: Canadian Vickers, Ltd. Montreal, P.Q.

A "TRAYLOR" LEADS TO GREATER PROFITS

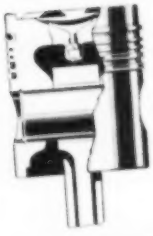
NEW "CAT" DW20 TRACTOR AND W20 WAGON

Big Producers!

NEW "CAT" DW21 TRACTOR AND NO. 21 SCRAPER

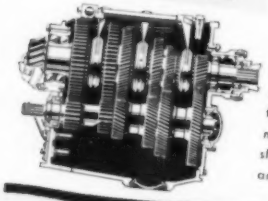
LOOK UNDER THE HIDE

PISTONS



"Caterpillar" pistons are made of strong, lightweight aluminum alloy. Stationary oil jets cool pistons and lubricate piston pin and bushings. Chrome-faced top compression ring, seated in cast-iron band, insures long life and trouble-free operation.

TRANSMISSION



The "Caterpillar" transmission is of constant-mesh type with gears of high-quality, pre-tested alloy steel, heat treated for long wear. Final machining and finish shaving assure accuracy and quietness.

THESE power twins are the largest units in a complete line of "Caterpillar" equipment. Combining high speeds with high capacities, they deliver the high production stripping overburden and handling aggregates that is needed to meet today's increased civilian and military demands. They give you the choice of 2 or 4 wheels in husky hustlers built to stand up under tough going.

For big production on long hauls, use the 4-wheel "Cat" DW20 with its top speed of 26.6 m.p.h. The DW20 offers 2 matched trailed units. The W20 Wagon—heaped capacity, 25 cu. yds. And the No. 20 Scraper—heaped capacity, 20 cu. yds. The DW20 is also available with the No. 20S Bulldozer.

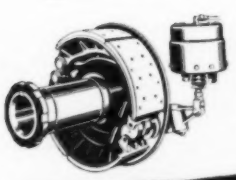
For big production on jobs best suited to 2-wheel rigs, you've got the edge with the "Cat" DW21. Trailing the No. 21 Scraper, which has a heaped capacity of 20 cu. yds., its top speed is 20 m.p.h.

Both these speedy giants are powered by the new 6-cylinder "Cat" Diesel Engine, producing 225 HP. available at the flywheel. Both can work under dragline, shovel or clamshell—and the DW21-No. 21 unit is self-loading. For complete data, see your "Caterpillar" dealer. Under today's conditions, it's a good move to talk over your requirements *now* with him. He's as close as your phone for service or information—call him today!

CATERPILLAR, PEORIA, ILLINOIS

...for built-in quality!

BRAKES



Large 22-inch diameter air-activated "Caterpillar" brakes, with heavy-duty, molded linings, insure quick, smooth braking action. Independent drive wheel brakes aid in close-quarter steering.

POWER STEERING

"Caterpillar" power steering is supplied by hydraulic boosters. Natural "feel of the road" steering is retained. Heavy steel stops keep equipment from jackknifing. Mechanical steering is instantly at work in case of hydraulic failure. 90° turning.

CATERPILLAR

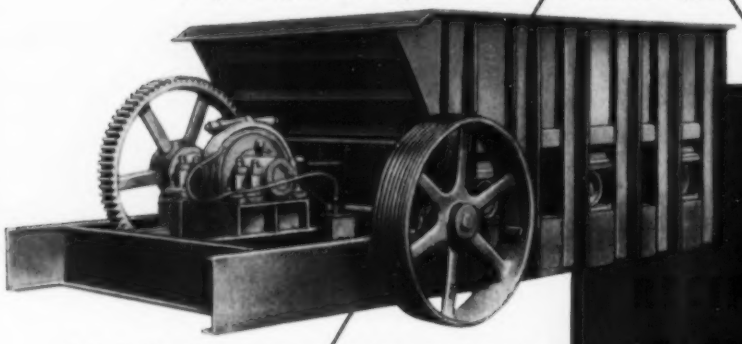
REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

A Great Combination..

For Low Cost Handling and Crushing Operations!

A combination of McLanahan Reciprocating Plate Feeder and Rockmaster Crusher is your answer to most economical feeding and crushing of 1000 tons or more of limestone, ore or rock per hour. Equipment can be furnished as component parts or as separate units to best suit your application.



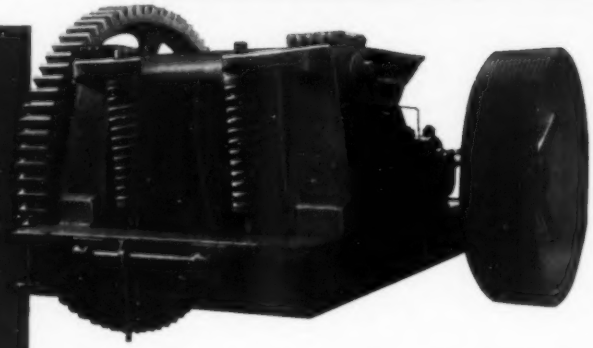
1

Heavy Duty

Built to handle materials from the size of sand to shovel-loaded rock, McLanahan Adjustable Reciprocating Plate Feeders automatically control the rate of flow of material, and are quickly adapted to the producing capacity of any machine.

2

Single Roll



The McLanahan Rockmaster Crusher is the economical solution to most any crushing problems. Greatest savings can be achieved by this combination of equipment. Outstanding for primary and secondary crushing operations, for use on limestone, gypsum, rock, gravel, shale, iron ore, slag and other materials.

Write Today

For Bulletins RM-503 and FRE-4812

McLANAHAN & STONE CORPORATION

Pit, Mine and Quarry Equipment Headquarters

Hollidaysburg, Pennsylvania

Dependable Products: Single and Double Roll—and Jaw Crushers, Crushing Plants, Reciprocating Plate and Apron Feeders, Roll Grizzlies, Conveyors, Elevators, Screens, Scrubbers, Steel Log Washers, Sand Drags, Hoists, Jigs, Dry Pans, Dryers, Scrap Bundlers, Pulleys, Gears, Bearings, Sprockets, Sheaves, Rollers, Bin Gates, Elevator Buckets, Gratings, Car Wheels, Ferrous and Bronze Castings.

LOAD A TRUCK WITH ROCK *EVERY MINUTE*

Rock loading with the Eimco 104 RockerShovel is easy. This heavy-duty loading machine is fast, versatile and dependable. Contractors using the 104 in hard-rock find that it is the best piece of equipment they have for that kind of work.

One user, working the 104 in an underground operation, reported loading 1440 tons of hard rock in 6½ hours — others have found that the 104 is much easier on trucks than boom type shovels — and all know that the 104 is much more economical.

The 104 is operated with one conveniently located lever and actuated independently of tractor controls. The use of this one lever will raise, lower or hold the bucket in any desired position.

Write for more information on the rock loading Eimco 104 RockerShovel.

SPECIFICATIONS:

Length	14'10"
Width	6'6"
Height	8'6"
Height of bucket travel	13'2"
Rock buckets capacity	1¼ yds.
Loading cycle	10-15 secs.
Loading capacity	4-6 yds. per min.

EIMCO

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES — SALT LAKE CITY 10, UTAH, U. S. A.

BRANCH SALES AND SERVICE OFFICES:

NEW YORK: 51-52 SOUTH STREET + CHICAGO: 3319 SOUTH WALLACE STREET
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IN FRANCE: SOCIETE EIMCO, PARIS, FRANCE
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AGENTS IN ALL PRINCIPAL CITIES THROUGHOUT THE WORLD

6500 pay yds. per day for

On the Columbia River near Bridgeport, Washington, General Construction Company of Seattle is excavating a 4,000,000-yd. intake channel for the powerhouse at Chief Joseph Dam. Project calls for digging approximately 2,500,000 cubic yds. of granite and rock and 1,500,000 yds. of silt-sand from a bend in the river . . . then using the material to relocate a riverside highway. Most of the heavy hauling is being handled by a Le Tourneau fleet of 9 electric-control dirt-movers . . . including 5 rear-dump C Tournarockers and 4 C Tournapulls. Contractor's records show that on hauls ranging from 200 to 4000′ one-way, the 5 Tournarockers alone are averaging 812.5 yds. an hour . . . 6500 pay yds. of rock and sand per day.

2200′ cycle every 6 minutes

On a typical 2200′ cycle, for example, the 5 Tournarockers moved 640 pay yds. an hour. Two 2½-yd. shovels loaded the LeTourneau rock wagons with mixed granite and pocketed sand in 2¼ to 2½ minutes. Loads averaged 16 bank yards. Much of the haul was over narrow roads and up adverse grades . . . yet each Tournarocker completed a round trip every 6 minutes . . . delivered 8 loads an hour.

Fast cycles like these are possible because Tournarocker's short 90° turns and positive fingertip electric steer permit quick spotting both at shovel and at dump. Heavy-duty, multi-disc air brakes on all 4 wheels (4176 sq. in. total braking surface) give operators complete driving safety throughout the haul cycle. Holding action of powerful brakes . . . plus front-wheel drive on big tires of prime mover . . . let Tournarockers dump safely over steep banks. Simple electric hoist tilts body to vertical position . . . streamlined bowl clears loads instantly.

Offer important savings for you

These same Tournarocker advantages which are helping General Construction Company speed Chief Joseph Dam construction offer new low-hauling costs on your jobs, too. Ask your LeTourneau Distributor about this 16-ton, rear-dump Tournarocker. He can also give you complete information on 35-ton as well as 9-ton Tournarockers . . . and, if you wish, will show you how you can get money-saving interchangeability by using the Tournarocker prime mover to power Carryall Scrapers, bottom-dump hoppers, cranes, flatbeds, or other hauled units. Write . . . or call him *TODAY!*

LETOURNEAU LET EQUIPMENT

TOURNAROCKERS

FOR LOWEST NET COST PER YARD

hauled by 5 TOURNAROCKERS

General Construction Co.

2000 pay yds. per day moved by 4 C TOURNAPULLS

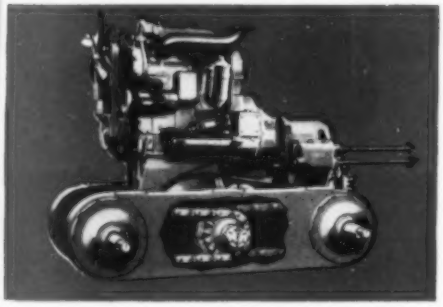
While 5 Tournarockers were setting high production records on this Columbia River job, General Construction Company's 4 high-speed, electric-control C Tournapulls were moving dirt at an equally fast pace on another section of the project. Using a 144 h.p. pusher to load over 70′ distances, each Tournapull heaped 10 pay yds. of moist silt-sand and gravel in 50 seconds . . . highballed 1300′ to dump . . . spread over 60′ in 20 to 25 seconds. Each Tournapull completed the 2600′ cycle over extreme grades and rough, winding haul roads in 6 minutes . . . made 8.3 trips an hour . . . delivered 84 pay yds. That's 332 yds. hourly for the 4 Tournapulls . . . and checks with contractor's production records which show that on hauls ranging from 1000 to 4000′ one-way, the 4 rubber-tired Le Tourneau rigs are averaging 250 cubic yds. an hour . . . 2000 yds. per 8-hour shift.

Tournarocker—Trademark. Tournapull Company—Trademark Reg. U.S. Pat. Off.

TOURNAPULLS

R. G. LeTOURNEAU, Inc., Peoria, Illinois

Rough, Rugged, Heavy Duty Lubes for every equipment need!



Look over this complete line of all-weather... all-purpose lubricants!

NAME ANY LUBRICATION PROBLEM you can think of! There's the right grade and type of Cities Service lubricant to do a real job for you. This performance-tested line of quality products will help speed your heavy duty operations, cut maintenance costs, prevent equipment breakdowns. Get in touch with the nearest Cities Service office to learn how these high grade lubricants can help you.

- **Trojan All-Weather... All-Purpose Greases**
- **Pacemaker Oils**
- **Trojan Gear Oils**
- **Heavy Duty Motor Oils**

FREE — A helpful new booklet—Earth Moving and Construction Machinery lubrication. Above cutaway view is typical of illustrations found in this new 50-page book dealing with proper lubrication in the construction industry. Write today for your copy.

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Sixty Wall Tower, Room 1070
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Please send me without obligation your new booklet entitled "Earth Moving and Construction Machinery Lubrication."

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CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

WIRE ROPE

For better performance on quarry excavating equipment it's ROEBLING rope

FOR EASY HANDLING, extra toughness and service life, there's nothing like Roebling Preformed "Blue Center" Steel Wire Rope. "Blue Center" steel—made only by Roebling—gives rope top resistance to abrasion and fatigue. And Roebling Preforming gives you a rope that spools better... doesn't tend to set or kink... minimizes vibration and whipping.

There is a Roebling wire rope of the right construction, grade and size for every type and make of rope-rigged equipment. Have your Roebling Field man help choose the rope that will give you the best and the lowest-cost performance. Still further savings may be effected by following his suggestions about the proper installation, use and maintenance of wire rope. John A. Roebling's Sons Company, Trenton 2, New Jersey.

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Atlanta, 934 Avon Ave ★ *Cambridge*, 31 Carleton St ★ *Chicago*, 5525 W. Roosevelt Rd ★ *Cincinnati*, 3253 Fredonia Ave ★ *Cleveland*, 701 St. Clair Ave, N.E. ★ *Denver*, 4801 Jackson St ★ *Houston*, 6216 Navigation Blvd ★ *Los Angeles*, 216 S. Alameda St ★ *New York*, 19 Rector St ★ *Odessa, Texas*, 1920 E. 2nd St ★ *Philadelphia*, 230 Vine St ★ *San Francisco*, 1740 17th St ★ *Seattle*, 900 1st Ave, S. ★ *Tulsa*, 321 N. Cheyenne St

ROCK RATED!

FOR HEAVY GOING

P&H *Magnetorque**

SLICKEST SWING YOU'VE EVER KNOWN!

It's everything you've wanted for more profitable rock handling . . . It's the P&H 955-A (2½ yd. shovel) . . . newer . . . better . . . proving it where the going is heaviest. Here's why:

P&H MAGNETORQUE ELECTRIC SWING. The smoothest, slickest swing you've ever known . . . yours for the full life of your machine. Old style swing frictions are *out* . . . all their troubles, adjustment and replacement costs.

SMOOTHER OPERATION means less strain on machine and operator. **GREATER STABILITY** gives you increased digging ability. **ALL-WELDED** for maximum strength.

Ask to see the one working nearest you. It's the 2½ yd. version of the famous 1055 (3½ yd.).

P&H **EXCAVATORS**
4451 W. National Ave.
Milwaukee 14, Wisconsin
HARNISCHFEGER CORPORATION

*T. M. of Harnischfeger Corporation for electro-magnetic type clutch.

EXCAVATORS • OVERHEAD CRANES • HOISTS • ARC WELDERS & ELECTRODES • SOIL STABILIZERS • CRAWLER & TRUCK CRANES • DIESEL ENGINES • CANE LOADERS • PRE-ASSEMBLED HOMES

IT COSTS LESS TO OWN THE BEST!

View From Kiln Feed Platform Between The Kilns

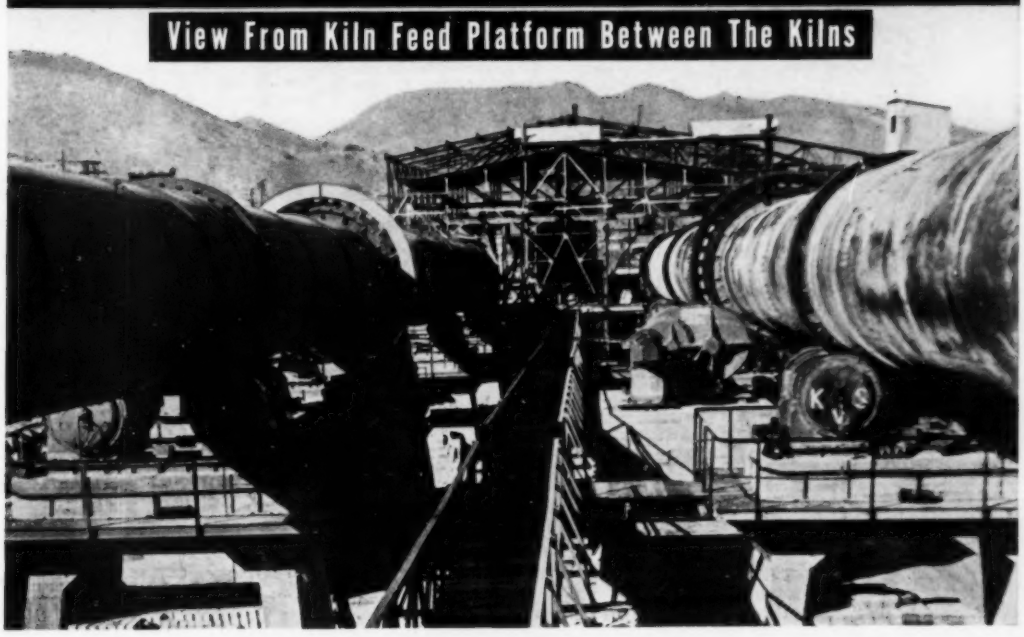


ILLUSTRATION SHOWS TWO LARGE KVS KILNS WITH SELF-ALIGNING BEARINGS

CAPACITY UNLIMITED!

KENNEDY KILNS ARE BUILT TO LAST

featuring:

ALL-WELDED SHELLS WITH SPECIAL THICK SECTION UNDER TIRES

CARRYING ROLLERS MOUNTED IN OVERSIZE SELF-ALIGNING BEARING TO GIVE LOW SPECIFIC BEARING PRESSURE.

Let a KVS engineer review your plant needs and recommend the proper design and size kiln to meet your needs. Long life and dependable service distinguish all KVS products. It's the users who say "It Costs Less To Own The Best."

Send for bulletin describing KVS Kilns, Coolers & Dryers

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y. **FACTORY: DANVILLE, PA.**

IT COSTS LESS TO

MORE AND BETTER LIME

WITH KENNEDY "ENGINEERED" PRODUCTION EQUIPMENT

The present Kennedy Preheater, Soaking Pit and Deheater is the result of exhaustive tests designed to increase Thermal efficiency. Actual operation has established fuel savings up to 40% with an increase in output of 20%.

Among the improvements incorporated in this revolutionary system are virtual elimination of ring formation. Hot stone, entering the rotary section, deposits an even coating of lime on the firebrick from feed end to calcining zone.

Preheater serves as a dust collector. Based on the stone feed, up to 2% of dust is recovered. Lower kiln temperatures result in longer refractory life. Hot zone liners now last up to two years.

Due to the absence of moving parts, wear is practically eliminated and maintenance costs are negligible. Savings up to 20% in kiln efficiency are recorded with use of the Kennedy Preheater in comparison to operating costs of kilns without the Preheater.

This lime production system produces more and better lime . . . faster . . . consistently and at lower cost than any previous model. It typifies our claim that "It Costs Less To Own The Best!" Investigate this IMPROVED lime production process without obligation.

• A view of the preheater installation at the Duluth plant of Cutler-Magner Co.

• A view of Kennedy Preheater installation at plant of Lee Lime Corporation, Lee, Mass.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

OWN THE BEST!

KENNEDY PREHEATER, SOAKING PIT & DEHEATER

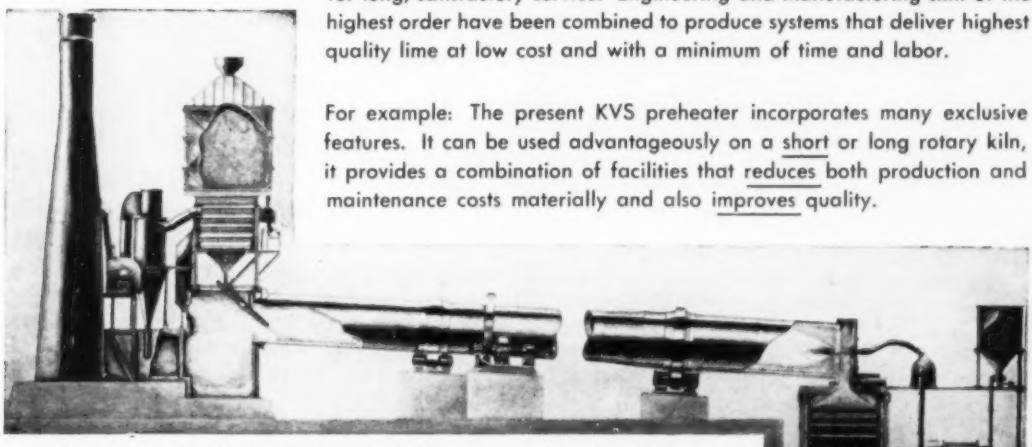
RECOVERS AND UTILIZES EXIT GASES
NO MOVING PARTS . . . NO MAINTENANCE COSTS
ELIMINATES ALL OVERBURNING OR UNDERBURNING
HEAT RADIATION HELD TO A MINIMUM
QUICK ADJUSTMENT . . . EASE OF CONTROL
UNIFORM OPERATION, ALL STONE RECEIVES SAME TREATMENT

Increases capacities up to 20%

Shows fuel savings up to 40%

KVS Lime production equipment has established a world-wide reputation for long, satisfactory service. Engineering and manufacturing skill of the highest order have been combined to produce systems that deliver highest quality lime at low cost and with a minimum of time and labor.

For example: The present KVS preheater incorporates many exclusive features. It can be used advantageously on a short or long rotary kiln, it provides a combination of facilities that reduces both production and maintenance costs materially and also improves quality.

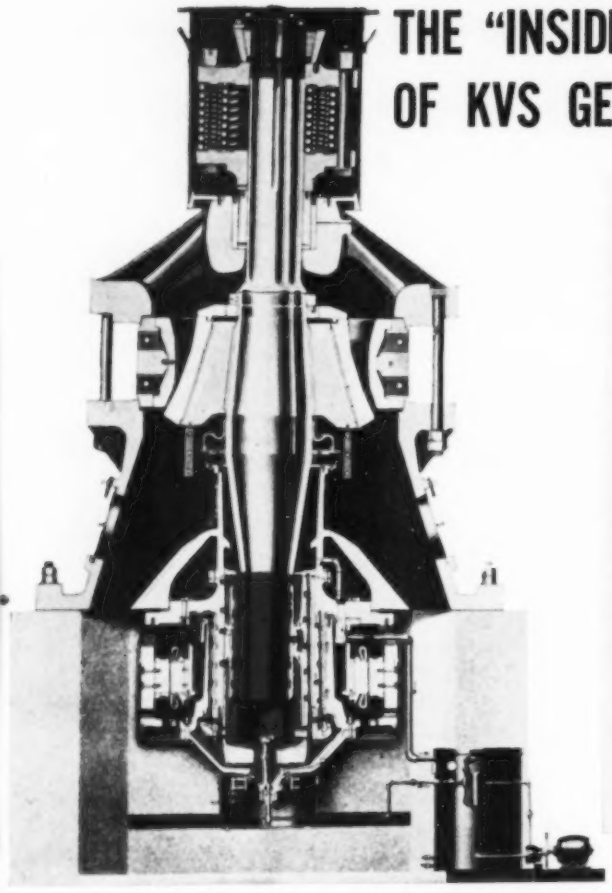


Blue prints and engineering data are available on request. Send for bulletins describing, fully, the world-famous KVS lime production equipment.

2 PARK AVENUE • NEW YORK 16, N. Y. FACTORY: DANVILLE, PA.

IT COSTS LESS TO OWN THE BEST!

THE "INSIDE STORY" OF KVS GEARLESS CRUSHERS



CUTAWAY DRAWING OF ROLLER BEARING TYPE "S" CRUSHER

The oiling system is the heart of every crusher. When it fails, bearings burn out . . . weeks of valuable time are lost in making replacements . . . work stops . . . and so does income! KVS offers the solution to this ever-present problem with their positive oiling system. Built without "gimmicks" and trick safety devices that all too often fail to work, this system is virtually fool-proof.

A simple gear pump draws oil from a serpentine cooled tank and, under pressure, pumps it through a filter to a compartment below the ball socket bearing. Oil is then forced UP between this bearing and the shaft and overflows to the eccentric and pulley bearings. This floods the roller bearings, and the oil then overflows into the storage tank. A bypass releases the pressure back into the storage tank, thus maintaining a constant and even flow at all times.

It has been proved through countless tests and is, today, the "Heart" of the famous Kennedy Gyratory Crushers. It provides a system that oils vital parts without failure and without depending on someone's memory.

IT'S CORRECTLY DESIGNED TO LAST FOR YEARS

The oiling system in the Kennedy Gearless Crusher is perfect. Approximately 4 barrels of oil per hour are constantly pumped through the bearings and there is no waste—no spillage of oil. It is the most perfect oiling system that was ever put on a crusher. These crushers have been known to run for many years without renewals to the eccentric.

Send for engineering bulletin describing this system

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

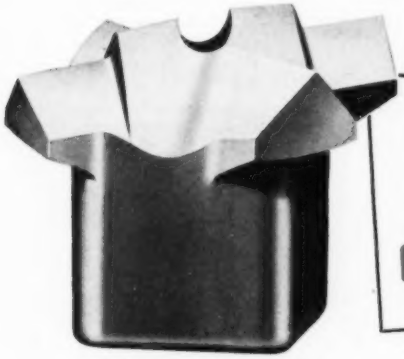
TWO PARK AVENUE, NEW YORK 16, N. Y. FACTORY: DANVILLE, PA.

1. MULTI-USE

TIMKEN® ALONE...

GIVES YOU ALL 3 ROCK BIT TYPES...

2. CARBIDE INSERT



3. ONE-USE "SPIRALOCK"

AND A COMPLETE ROCK BIT ENGINEERING SERVICE!

You're sure of getting the best rock bit for your particular drilling job when you get it from Timken®. Only Timken gives you *all three* types of rock bits, each with specific advantages—like lowest bit cost, or lowest cost per foot of hole, or greatest possible drilling speed.

1. MULTI-USE—gives lowest cost per foot of hole when full increment of drill steel can be drilled and when control and reconditioning of bits are correct.

2. CARBIDE INSERT—for extremely hard and abrasive ground. Drillers spend less time changing bits.

3. ONE-USE "SPIRALOCK"—for use where reconditioning is impractical or undesirable. Lowest unit cost. Has revolutionary new "Spiralock" union.

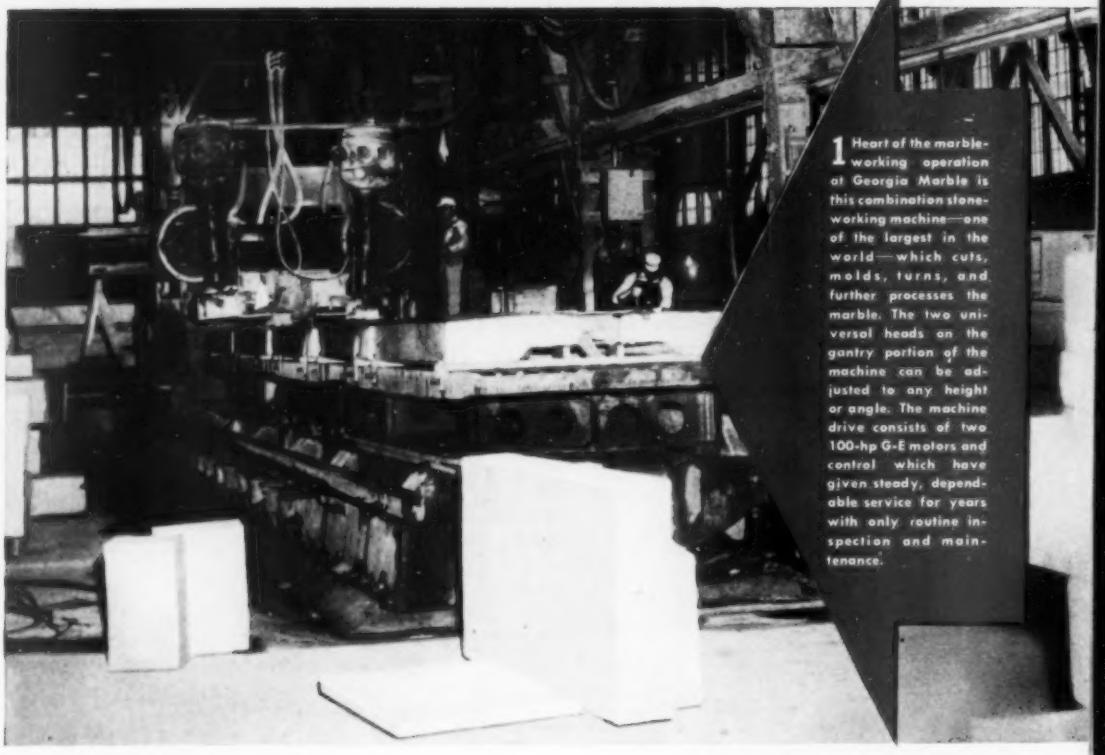
And only Timken offers you a complete Rock Bit Engineering Service. It's the world's largest field organization devoted exclusively to rock bit problems. And it's backed by more than 17 years' experience.

FREE BOOKLET! *Packed with helpful information. Shows full line of bits with detailed descriptions. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".*

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

. . . your best bet for the best bit . . . for every job



1 Heart of the marble-working operation at Georgia Marble is this combination stone-working machine—one of the largest in the world—which cuts, molds, turns, and further processes the marble. The two universal heads on the gantry portion of the machine can be adjusted to any height or angle. The machine drive consists of two 100-hp G-E motors and control which have given steady, dependable service for years with only routine inspection and maintenance.

2 At the quarry, where blocks of marble are hoisted onto flat cars for shipment to the plant, this 50-hp, G-E Tri-Clad* motor, with its G-E control shown at left, powers the 20-ton quarry hoist. Tri-Clad motors are noted for their built-in 3-way extra protection against physical damage, electrical breakdown, and operating wear.

*Reg. Trade-mark of General Electric Co.

3 This 65-ton G-E diesel-electric switching locomotive, shown hauling marble blocks to the plant over the company's 14 miles of rail road, has been in service since April 1946. According to T. J. Durrett, Jr., vice-president, "it has provided excellent service, considerable saving in track maintenance, and substantial fuel economies."

4 After going through gang saws operated by a 40-hp G-E motor, the marble slabs are smoothed down on two rubbing-beds (one shown), both powered by the 60-hp G-E motor in upper left. The plant's G-E motors and control have helped maintain a high degree of production continuity.

You can put your confidence in—

GENERAL ELECTRIC

658-4

ELECTRIFICATION WITH G-E DRIVES BOOSTS PLANT'S OUTPUT!

5. Providing stabilization of voltage at Georgia Marble Co. plant is this G-E 3000 KVA synchronous condenser which improves power factor throughout varying load conditions inherent in rock products industry. Another method for improving plant power factor is the use of efficient, trouble-free synchronous motor drives where applicable.

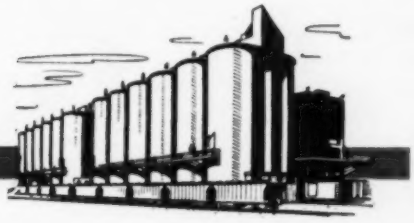
G-E motors and control, plus G-E diesel-electric switching locomotive, increase efficiency and savings at Georgia Marble Company

In marble-working—as in all rock product industries—electrification pays off handsomely when you use General Electric equipment. Take it from T. J. Durrett, Jr., vice-president of the Georgia Marble Co., of Tate, Georgia, who says:

"Electrification in our plant over the years has considerably improved operations, helping to raise production and reduce costs. In this respect our G-E equipment, in particular, has more than justified its cost."

Here's the point: Whatever you get from General Electric, whether a drive for one process or all your plant's electric equipment, it's coordinated into a smooth-working installation by a G-E industry engineer. Call him in early and see how his advice can help you speed output, cut costs. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

Everything you need to cut rock product costs . . . electrically!



71 Repeat Orders for FULLER CLINKER COOLERS

APPROVAL of fuel savings. Users of Fuller Inclined-Grate Clinker Coolers have reported savings as high as 20% due to recuperated heat returned to the kiln or furnace.

APPROVAL of fast, effective air-quenching. This ability of Fuller Inclined-Grate Clinker Coolers allows user to obtain specific quality effects when this result is required.

APPROVAL of increased grindability of cement clinker. Laboratory tests and reports from users have confirmed this ability of Fuller Inclined-Grate Coolers.

FULLER clinker cooling equipment is currently handling materials like pebble lime, ores, dolomite, iron nodules, and Portland cement clinker at a current rate of approximately 26,000,000 tons annually. This record has been built on a basis of advanced thinking and sound engineering . . . Engineering that enables every installation to operate at maximum efficiency with minimum maintenance. Take advantage of FULLER'S long experience in materials handling and cooling . . . A talk with one of our engineers may lead to more profitable operation.

Fuller

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS • COMPRESSORS AND VACUUM PUMPS FEEDERS AND ASSOCIATED EQUIPMENT

FULLER COMPANY
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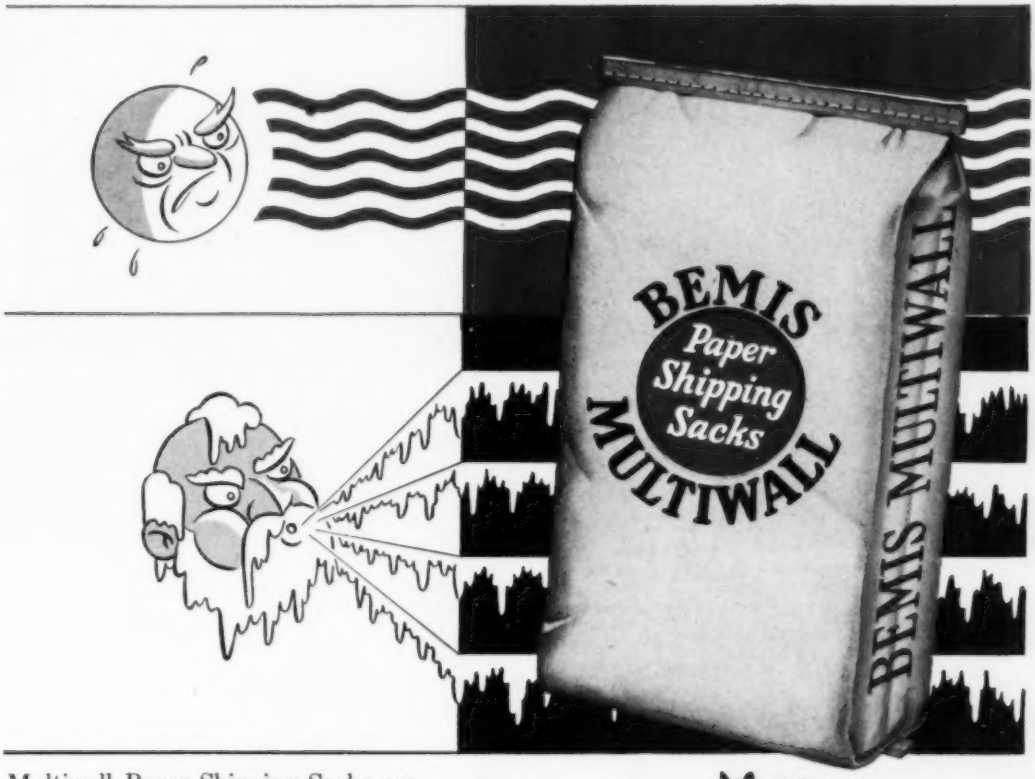
CO-27

Be Multiwall Wise

Acclimatize

Keep Bags from Getting Thirsty



Multiwall Paper Shipping Sacks are amazingly tough. They don't need to be pampered. But they *do* need reasonable care. Unless they're protected against moisture loss, they dry out and can't work their best when being packed, closed, or handled. In some sections of the country "drying out" may happen in winter, in other sections during the summer, depending on the humidity. But it's a simple matter to keep Multiwalls from getting thirsty. Bemis Multiwall Specialists show you how.

Bemis

BEMIS BRO. BAG COMPANY

"America's No. 1 Bag Maker"

Peoria, Ill. • East Pepperell, Mass. • Mobile, Ala. • San Francisco, Calif. Vancouver, Wash. • Wilmington, Calif. • Houston, Texas

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MAIL THIS COUPON TODAY!

BEMIS BRO. BAG CO., 408 Pine St., Box 143, St. Louis 2, Mo.

☐ Have Multiwall Specialist give information on care of bags.
☐ Send information on Multiwall specifications.

Name _____

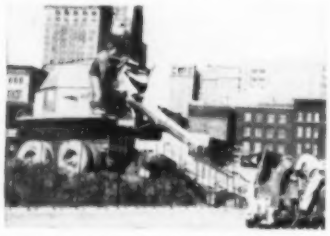
Company _____ *Address* _____

City _____ *Zone* _____ *State* _____

17 Years Young and 3,100,000 Cubic Yards to show for it!

126-S Worthington-Ransome Big Mixer at Arundel-Brooks Concrete Corporation's Wolf Street plant, Baltimore, shows hardly any sign of wear after having poured 3,100,000 cu yd in its 17 years.

Worthington-Ransome 126-S discharging full 5 cu yd batch in approximately 30 seconds.



One of Arundel-Brooks' 6½ cu yd agitators pouring a retaining wall at General Sam Smith Park, being built to relieve traffic congestion at Light and Pratt Streets, Baltimore.

In 1950—its 17th year—this veteran concrete mixer poured more than 250,000 cu yds on a single set of liners!

This extraordinary performance of a 126-S Worthington-Ransome Blue Brute concrete mixer is attested to by Arundel-Brooks' records. The machine, given proper maintenance over its lifetime, shows virtually no wear after uncounted hours of profitable service.

Arundel-Brooks operates two other Worthington-Ransome Big Mixers—an 84-S at the Sparrow's Point plant, a 56-S at Brooklyn, Md.

And eight of the company's growing fleet of truck-mounted agitators are Worthington-Ransome Blue Brute Hi-Ups, considered "highly satisfactory in every respect."

These eight are used for most long-distance hauls because their light weight* permits carrying a maximum payload with strict adherence to highway load limits.

FIND OUT WHY THERE'S MORE WORTH IN WORTHINGTON

See your nearby Worthington-Ransome distributor. Worthington Pump and Machinery Corporation, Construction Equipment Sales Division, Dunellen, N. J.

*7,290 lb for the standard 4½ cu yd truck mixer, as little as 6,700 lb for 6½ cu yd agitator models.

WORTHINGTON

BUY BLUE BRUTES

You'll find you, too, can get the real *performance plus* from Worthington and Worthington-Ransome Blue Brutes—a broad line of construction equipment noted for the rugged quality your type of work demands.

R-1-1

IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

Euclid... Specialist

IN OFF-THE-HIGHWAY HAULING EQUIPMENT

Built by a pioneer manufacturer of earth moving equipment, Euclids incorporate the know-how of years of experience. Every Euclid model is engineered specifically for off-the-highway work; all of the production and service facilities of Euclid are devoted to this type of equipment.

Heavy-duty design and construction throughout assure long life and dependable performance . . . more loads per hour and more profit per load on the toughest jobs. Some of the Euclid-built features are the planetary type drive axle, frame and body on all models, and double-acting hydraulic hoist for Rear-Dump and Side-Dump "Eucs".

Owners can depend on Euclid's world-wide distributor organization for parts and service when and where they are needed. Call or write your Euclid Distributor for complete information on models best suited for your job requirements.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

EUCLIDS *Move the Earth*

$10,000 SAVED ANNUALLY
on a $12,600 investment

$3,500 SAVED ANNUALLY
on a $4,200 investment

These are actual Case Histories

CASE HISTORY NO. 1

With a New Bulldog Hammermill crushing 20" and under Fuller's Earth, 50% Moisture

Before	After
Operation required one primary double roll, 8 screens, two secondary double rolls, with auxiliary equipment. Continuous clogging, produced irregular finished product, consumed excessive fuel in drying, extruding operations expensive.	Installing one Bulldog Hammermill. One stage operation, no clogging —no delays or shut-downs. Now produces a uniform cubicle product easily dried, saving fuel. Saves labor, maintenance, fuel and produces a better finished product.

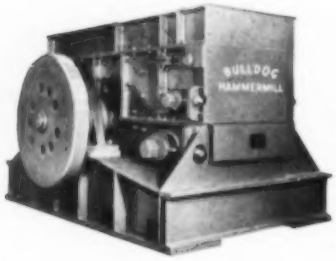
Second Hammermill purchased as a result of savings.

CASE HISTORY NO. 2

Rebuilding an existing operating Hammermill Crushing Limestone for cement

Before	After
Maintenance required replacement of 26,400 lbs. of manganese steel hammers and 12 sets of hammer bolts annually. Load capacity required extra operating hours. Primary grinding was not suitable for final roll type pulverizer.	With Bulldog rebuilding, the Hammer replacement was reduced to 3,600 lbs. manganese steel and one set of hammer bolts per year. Capacity increased 30% with less power consumption, better finished product saving power and maintenance in roll type pulverizer.

YOU CAN CUT COST — INCREASE CAPACITY — IMPROVE PRODUCT
with a
NEW BULLDOG HAMMERMILL



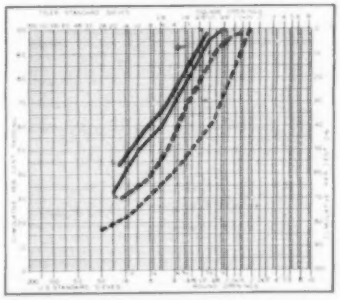
Compare your crushing operation with the actual proven results charted at right.

Solid red line indicates material from Bulldog Hammermill with screens in closed circuit.

Dotted red line shows Bulldog Hammermill no screens, open crushing.

Solid black line indicates standard impactor with screens in closed circuit.

Dotted black line indicates standard hammermill no screens, open crushing.



Bulldog Hammermills with Non Clog *Moving Breaker Plate* for sticky or high moisture materials or with *Stationary Breaker Plate* for dry materials are built in all sizes up to 72" x 60" for primary, secondary and fine reduction. Write for complete details.

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Hammermills, Inc. is now a division of Pettibone Mulliken Corp., and has the tremendous facilities of PMCO. to back our products . . . with full control over research, construction and fabrication combined under one roof.

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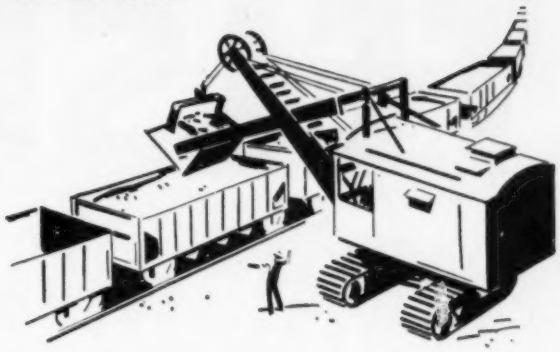

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Greatly increased resistance to heat (rated at 80° C.)

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Outstanding protection against impact, crushing, twisting and abrasion.
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Its special "copper-cotton" shield eliminates failures due to chafing and makes splicing faster and easier.

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This means more safety, longer service, less maintenance, fewer power interruptions and hence more production at less cost.

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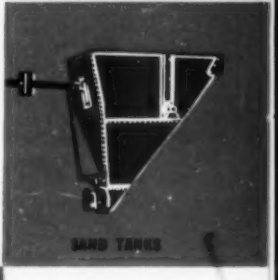

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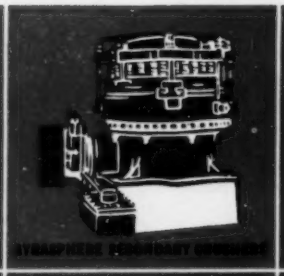
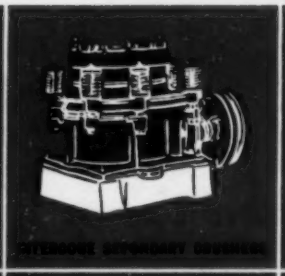
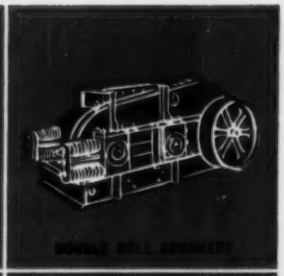

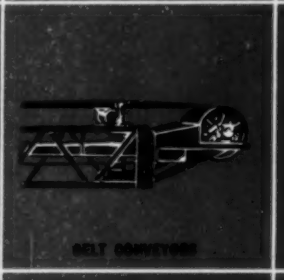

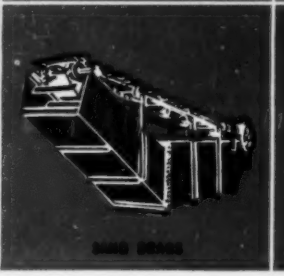
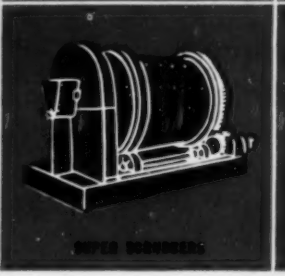

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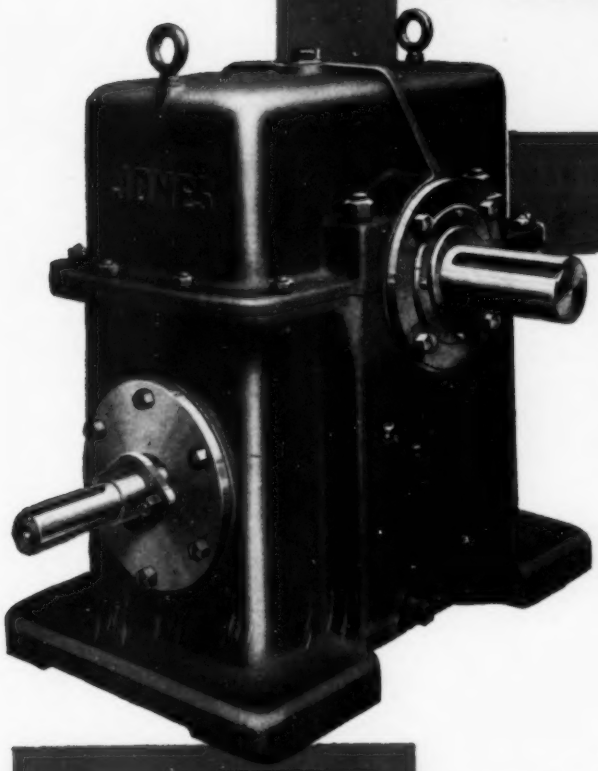

A right angle unit built for heavy duty performance in any industry. The worm can be above or below the gear. Shafts single or double extended for coupling connections or chain or gear drives.
They are built in ratios from 4 to 1 to 90 to 1 and in capacities from ¼ to 100 H.P.
Bulletin No. 68 covers selection tables and dimensions.

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For lubrication help, see your local Supplier of Sinclair Products or write to Sinclair Refining Company, 630 Fifth Avenue, New York 20, N. Y.

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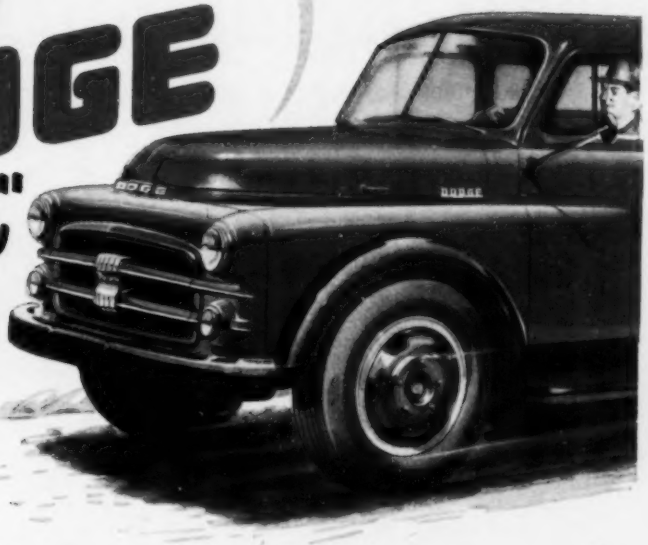
NEW DODGE "Job-Rated" TRUCKS



The trucks that do the most for you!

NEW Greater Power! Eight engines—with horsepower increases as high as 20%. You'll enjoy the *right power* for your job! *With all their extra value, Dodge "Job-Rated" Trucks are priced with the lowest!*

NEW Interiors! Striking new, massive appearance—inside and out! Lower hood line for better visibility. Attractive two-tone cab interiors. New clear-vision instrument panel. New seat comfort.

NEW Extra Quiet Brakes! Another Dodge "first"! Molded, tapered Cyclebond brake lining. Practically eliminates squeal and grab. Extra-smooth, positive action. Extra-long life. Standard on trucks 1½-ton and up, except air brake models.

ANOTHER DODGE EXCLUSIVE! gyrol fluid drive now available on ½-, ¾-, and 1-ton models.

NEW Easier Handling! Now, even sharper turning! More comfortable steering angle and easier-operating new worm-and-roller steering gears! You also get such proved features as cross-steering, wide front tread, short wheelbase.

MORE THAN 50 BRAND-NEW IMPROVEMENTS . . . INCLUDING

- NEW! SMOOTHER RIDE
- NEW! EASIER LOADING
- NEW! EASIER BAD-WEATHER STARTING
- NEW! GREATER ELECTRICAL CAPACITY
- NEW! EASIER-TO-READ INSTRUMENTS
- NEW! BETTER VISIBILITY IN BAD WEATHER
- NEW! MORE EFFICIENT FUEL PUMP

See the NEW **DODGE "Job-Rated" TRUCKS** on display at your dealer's **SATURDAY, FEBRUARY 10th**

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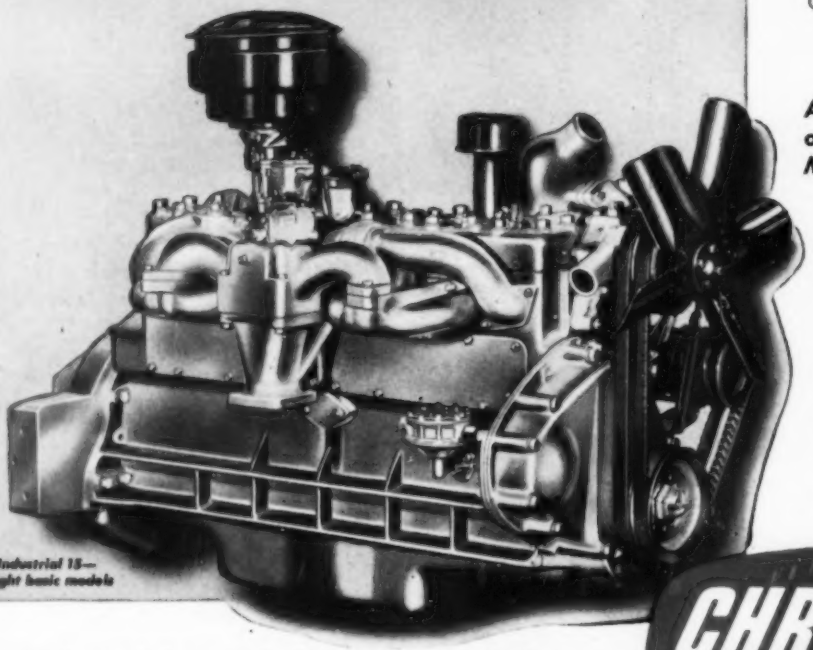

Chrysler Industrial 15—one of eight basic models

A few of the many outstanding Chrysler Mechanical Features

- All friction surfaces Superfinished by an exclusive Chrysler process.
- Statically and dynamically balanced Crankshaft.
- Sodium cooled Exhaust Valves.
- Stellite Exhaust Valve Seat Inserts.
- Stainless Steel Valve Springs.
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- Completely waterproofed Ignition.
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Among engineers who have *seen the difference in the field* there is no question about the superior performance and economy of high speed industrial power. Only remaining question is—"Who makes the high speed industrial engine most free from maintenance and most readily adaptable to our equipment at the lowest cost?"

The answer is leading more and more manufacturers to Chrysler, *first* to develop a higher speed engine, continuously *first* with the greatest number of important improvements. A letter of inquiry will bring a qualified engineer to your desk for discussion.

Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.

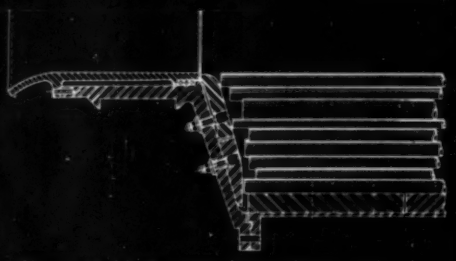
CHRYSLER

HORSEPOWER WITH A PEDIGREE

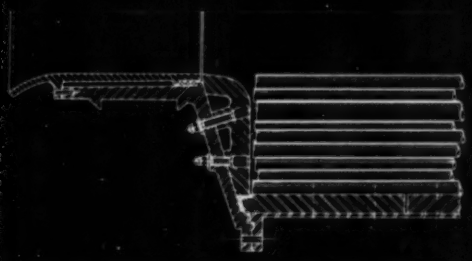
Allis-Chalmers Builds Rod Mills with Straight *INSTEAD OF SLOPING* End Liners

HERE'S WHY...

- **Less Rod Overlap**
- **Less Wasted Grinding Area**
- **Less Gouging of End Liners by Protruding Rod Ends**
- **Better Grinding Efficiency... Less hp per ton**
- **Minimum Tramp Oversize in Product**



Sloping end liners invite this condition. Rods overlap, causing wasted grinding area at rod ends and excessive wear on end liners.



Vertical end liners keep rods even in mill. Wear on end liner is greatly reduced. All of rod length is utilized for useful grinding.

STRAIGHT END LINERS mean better grinding performance all around . . . with less costly maintenance. That's why vertical end liners are standard on Allis-Chalmers rod mills.

It adds up to this—close control of product top size . . . and less hp required to grind more product. All available rod length is utilized. No wasted power caused by rod overlap. The actual gain in grinding efficiency with vertical end liners may be as high as 2 percent!

Allis-Chalmers is the *only manufacturer* building large rod mills with vertical end liners. Other reasons why it pays to specify Allis-Chalmers for grinding mills:

- **There's no pocket between end liner and head at trunnion end to fill with pulp and form a race. This space is filled with cement before end liner is installed.**
- **Three packing rings seal space between trunnion liner and trunnion.**
- **Trunnion bearings on larger size mills are equipped with an individual high pressure lubricating pump to "float" the mill for starting. No destructive bearing wear caused by high starting torque.**

There is an Allis-Chalmers engineer-consultant in your area who can point out other advantages of A-C grinding mills... and help you work out your grinding problems. Call him, or write Allis-Chalmers, Milwaukee 1, Wis.

Allis-Chalmers builds overflow, center and and peripheral discharge rod mills; ball, pebble and preliminator mills; multi-compartment *Compeb* and *Ballpeb mills*.

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Vol. 43 FEBRUARY 1951 No. 8

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PIT AND QUARRY

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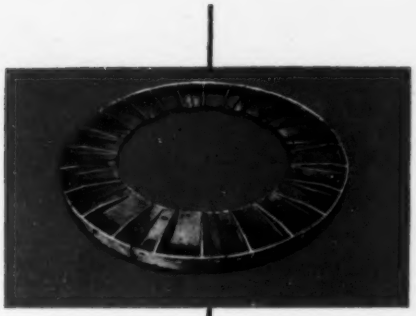

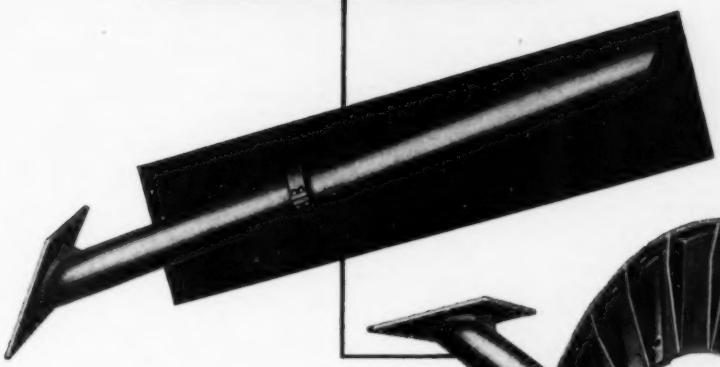

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The design of B&W Tail-Ring Castings provides a kiln opening of the proper size without resorting to special installation and cutting of bricks. Through the use of overlapping segments, spillage of raw material into the dust chamber is eliminated, and stack losses are reduced. Further, they allow for expansion so that deformation of the kiln shell, with its accompanying effect on kiln sealing, is prevented.

B&W Feed Pipes, due to their heat-resistant properties, are widely used. In case of burning or erosion, lower portion may be renewed at moderate cost. The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.

cast to last by . . . BABCOCK & WILCOX

5-398

editorial

The Defense Minerals Administration

BECAUSE there has been some misunderstanding of the aims and purposes of the Defense Minerals Administration and because its activities will affect so many nonmetallic industrial minerals, a brief resume of its formation, objectives, and activities is here presented. As a result of inquiries and complaints about the minerals aid program Dr. James Boyd, Administrator of the DMA and other officials on January 20, 1951, testified before the Committee on Interior and Insular Affairs, which has jurisdiction over mines and mining. They testified that although the Defense Production Act was approved September 8, 1950, the authorization therein for loans and grants was not really effective until approval of the Excess Profits Tax Act on January 3, 1951. This was because the Internal Revenue Code required recipients of all loans, grants, and other payments for the purpose of encouraging mining to include such grants as gross income in their tax returns. The Act of January 3, 1951, exempts from gross income, payments made by the government to encourage exploration, development, and mining for defense purposes.

New application forms for loans and other forms of aid are being prepared, according to the testimony of Dr. Boyd, and a small mine aid program is expected to be in full readiness for action by the time mining operations can be undertaken in the Spring.

THE committee was assured that the Defense Minerals Administration has in mind the purposes and objectives of S. 2105, the Mine Incentive bill which passed the Senate in the first session of the 81st Congress and failed in the House by a narrow margin. An organization of 80 field examiners has already been appointed and is operating out of the regional headquarters of the Bureau of Mines in Denver for the purpose of examining the properties of applicants under the provisions of Sections 302 and 303 of the Defense Production Act. This law authorizes the President to make provisions for loans and to give other aid to private business enterprises to stimulate the exploration, development, and mining of strategic and critical metals and minerals, which was the principal objective of S. 2105 of the 81st Congress.

Although only seven contracts have been thus far made with domestic corporations, the processing of many more applications is well under way. It was predicted that within the next few weeks a substantial number of approved mining enterprises should be receiving government support so that, to the fullest extent possible, supplies of strategic and critical materials within the United States will be available.

DMA has full autonomy of administration within the programs and policies laid down by the Office of Defense Mobilization, of which the director is Charles E. Wilson, and by the National Production Administration, of which General William Henry Harrison is administrator. The latter two agencies have over-all authority with respect to the entire defense production activity of the government.

Dr. Boyd testified that the President has delegated his responsibilities for the encouragement of mineral production to the Secretary of the Interior, under whom the Defense Minerals Administration, headed by Dr. Boyd, operates. This administration has three principal objectives, Dr. Boyd said: "First, to maintain production from existing sources of mineral supplies; second, the expansion of production from known but practically inactive sources; and third, the encouragement of exploration and development for new sources in the continental United States, particularly."

EARLIER, on January 2, 1951, the Defense Minerals Administration issued a notice to the mineral industries and trades and to the general public designed to prevent hoarding of or profiteering in mineral raw materials. Acting under the terms of the anti-hoarding provisions of the Defense Production Act of 1950, the DMA listed more than 50 minerals which it has designated as scarce. Excessive accumulation of any of these materials is now unlawful.

The full text of DMA Notice No. 1 follows:

"Pursuant to the provisions of section 102 of the Defense Production Act of 1950 (Public Law 774, 81st Congress), Executive Order 10161 (15 F. R. 6105), and the delegation of December 18, 1950, by the Secretary of Commerce to the Secretary of the Interior (NPA Delegation 5, 15 F. R. 9155), the materials specified on the attached list are hereby designated as scarce materials. These materials are therefore subject to said section 102 which provides in part that in order to prevent hoarding, no person shall accumulate such materials (1) in excess of the reasonable demands of business, personal, or home consumption, or (2) for the purpose of resale at prices in excess of prevailing market prices.

"Special circumstances have rendered consultation with industry representatives, including trade associations, prior to the formulation of this order, impracticable and contrary to the interest of the national defense.

"Dated December 29, 1950.

"Approved: December 29, 1950.

(Sgd.) James Boyd
Administrator
Defense Minerals Administration

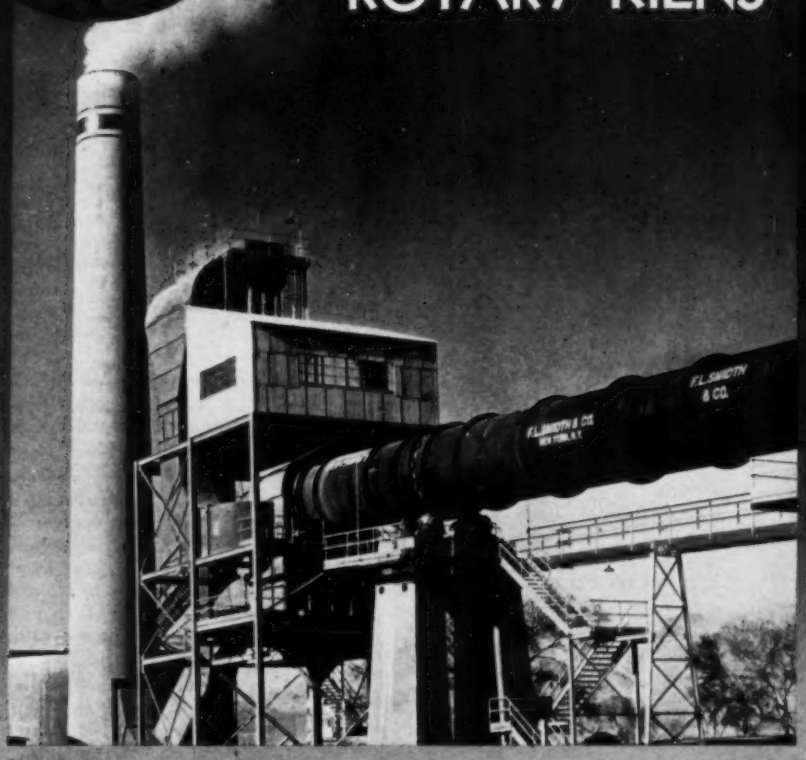
"(Sgd.) Oscar L. Chapman
Secretary of the Interior"

The nonmetallic minerals included under the designation of scarce materials in this order are: fluorspar ores; beryllium ores; dolomite; grinding pebbles, mill liners (crude); asbestos, unmilled; barite, witherite (crude); borates ores, brines (crude); bromine; fuller's earth, crude; cryolite ores; graphite, crude; quartz, crystals, raw; strontium ores; sulphur, pyrites; talc, pyrophyllite, crude; topaz, crude; wollastonite; kyanite and other ullite-forming minerals, synthetic mullite; mica, crude, trimmed, scrap; monazite, bastnasite; potash, crude.

Walter E. Trasoffer

SMIDTH

ROTARY KILNS



Over 950 Smidth Rotary Kilns have been supplied, some over 500 feet long.
The total capacity corresponds to one-half the World's production of cement.

For Smidth Machinery apply to:

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11 West 42nd Street
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F. L. Smidth & Co. of Canada, Ltd.
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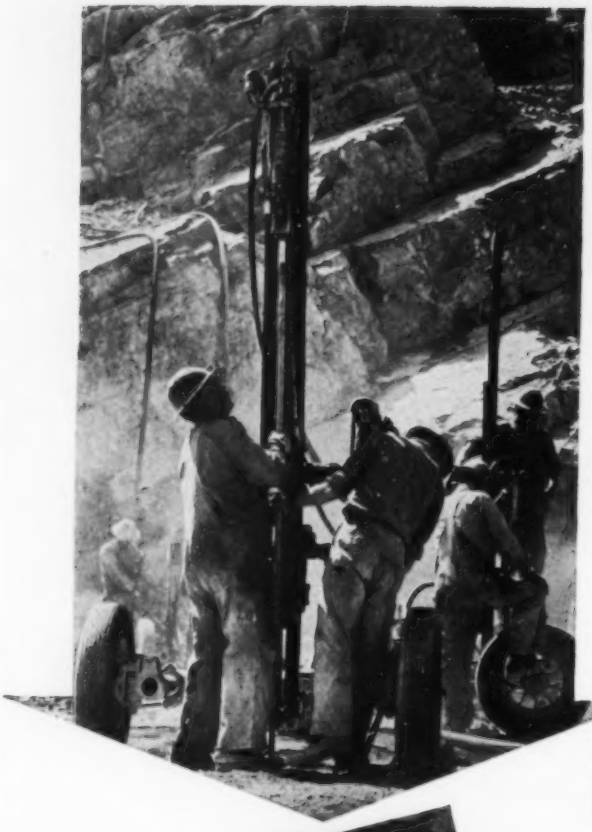
MORE FOOTAGE PER SHIFT



G-200R Wagon Drills speed production

Designed for drilling on any location—at any angle—CP WAGON DRILLS, eliminating operator fatigue, frequently double the footage over hand-held methods.

Providing fast and easy operation of the more powerful CP Drifter Drills (3½-inch and 4-inch cylinder bore), the medium weight G-200R WAGON DRILL easily drills holes up to 30 feet, vertically, horizontally, or at any angle. The flexible mounting makes it quickly adjustable for toe-hole drilling or bench drilling; its wheels swivel for line drilling or drilling close to face.

A sliding cone, with a 36-inch adjustment, offsets ground irregularities and uneven steel lengths. The CP rotary air motor gives a steady feed and quick return, with plenty of power for pulling tight steel. Write for a copy of SP-1980 for full details.

G-150 Wagon Drill makes drilling easy

The lightweight G-150 WAGON DRILL—equally as versatile as the G-200R—is designed for use with the CP 59-pound Sinker or 3-inch Drifter. It drills to depth of 20 feet or more depending upon conditions. Write for a copy of SP-3010 for complete description.

G-150 Wagon Drill

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General Offices: 8 East 44th Street, New York 17, N. Y.

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news of the industry

PIT AND QUARRY

Hausmann, Witmer Elected to Head Processed Limestone Assn.

At a recent meeting of The Processed Limestone Association, plans for an advertising campaign were discussed and two $200 agronomy scholarships were continued at Ohio State University.

At the same meeting the following officers were elected for 1951: president, A. K. Hausmann, The Kelley Island Lime & Transport Company, Cleveland, O.; vice-president, Frank Witmer, Ohio Hydrate & Supply Co., Woodville, O.; treasurer, Louis Kuenzli, Kuenzli Quarries Company, Inc., Upper Sandusky, O.; and secretary, Don Davis, Basic Dolomite, Inc., 845 Hanna Building, Cleveland, O.

International Minerals Adds Two Buildings in Bartow Area

Completion of International Minerals & Chemical Corporation's $500,000 service center and warehouse in the Noralyn plant area near Bartow, Fla., is scheduled for May 1. The 42,700-sq. ft. structure will provide space for a light mechanical shop, a heavy mechanical shop, an electric shop, and a warehouse.

Bartow is also the site of a $350,000 office building in process of erection for International. This structure will house the firm's Florida phosphate headquarters, which are presently located at Mulberry, Fla.

Calaveras Cement Company Expands Storage Facilities

At San Andreas, Calif., four new cement storage silos with a total capacity of 75,000 bbls. are being erected for the Calaveras Cement Company.

The silos are of reinforced concrete, and the sliding form method is being employed. Each silo will be 32 ft. in diameter and 94 ft. high. The Rust Engineering Company of Birmingham and Pittsburgh is handling the construction.

Smoot Sand & Gravel Co. Grants Voluntary Wage Hike

Officials of the Smoot Sand and Gravel Company, Washington, D. C., recently increased the wages of the firm's 220 union employees $2 a week in a voluntary reopening of its work contract with the A. F. of L. teamsters and operating engineers. Operations at the plant were crippled last year by a five-month strike.

Under the terms of the contract the wage increase will be in effect until August, 1951, when $1 more a week will be added to all wages. In addition the firm has agreed to give each worker a $25 bonus twice a year.

Coming Events

February 12-15, 1951—New Orleans. 35th annual convention, National Sand and Gravel Association. Roosevelt Hotel.

February 12-15, 1951—New Orleans. 21st annual convention, National Ready Mixed Concrete Association. Roosevelt Hotel.

February 20-22, 1951—San Francisco. 47th annual convention, American Concrete Institute. St. Francis Hotel.

Feruary 28 and March 1, 1951—New York. Second annual convention, American Concrete Pressure Pipe Association. Waldorf-Astoria Hotel.

March 1-3, 1951—New York. 43rd annual convention, American Concrete Pipe Association. Waldorf-Astoria Hotel.

March 19 and 20, 1951—Chicago. Annual convention, Wabash Valley Ready Mixed Concrete Association. Drake Hotel.

March 22-24, 1951—Washington. Annual convention, Autoclave Building Products Association, Statler Hotel.

W. B. Bell, President Of American Cyanamid, Dies in North Africa

William B. Bell, president of the American Cyanamid Company, died on December 20 in Marrakech, French Morocco, of a heart attack.

Mr. Bell, who was 71 years old, was chairman of the board of the Southern Chemical Company, the Jefferson Chemical Company, and the American Cyanamid and Chemical Corporation. A native of Stroudsburg, Pa., Mr. Bell became president of American Cyanamid in 1922.

Becker County Sand & Gravel Installs 2 Sand Separators

Two Cottrell 25-in. Whirlcone separators have been ordered by the Becker County Sand & Gravel Company for installation in the company's Camden, S. C., sand-and-gravel plant.

The units, which are being installed by B. F. Smith, plant superintendent at Camden, will be used to reclaim the fine sand fraction formerly wasted in the overflow from the sand machines in the plant circuit. The Whirlcones are manufactured by Cottrell Engineering Co., Los Angeles.

Quebec Industrialists Hear Proposal for Cement Plant

Armand Viau, Quebec City's industrial commissioner, recently outlined to a meeting of Quebec district businessmen a project for establishment of an $8,000,000 cement industry in that city.

The plant would have an annual output of 200,000 tons. M. Viau said that Canada has an annual shortage of about 250,000 tons of cement.

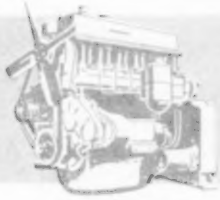
Plans for a central research laboratory to be located at Skokie, Ill., were recently announced by Dr. Paul D. V. Manning, vice-president of the International Minerals & Chemicals Corp.

On January 15, 1951, the New York offices of the Universal Atlas Cement Company, United States Steel Corporation subsidiary, were moved to 100 Park Avenue, New York 17, N. Y.

For improved lubrication of quarry equipment and lower maintenance costs:

GULF PRECISION GREASE — high quality sodium soap grease for ball and roller bearings operating at high speeds. Recommended for many shaker screen bearings.

GULF ROCK DRILL OIL — prevents gumming and rusting in air operated tools. Protects against excessive wear.



GULFLUBE MOTOR OIL H.D. — heavy duty detergent type oil for lubrication of Diesel engines. High quality, yet economical. Paraffin base, Multi-Sol Processed.

GULF E. P. LUBRICANTS — better protection for heavily loaded enclosed gear drives — good water separating characteristics.

GULF HARMONY OIL — ideal for compressor cylinders and bearings — reduces wear, corrosion.

GULF has the right lubricant for every type and size of crusher—ask a Gulf Lubrication Engineer for his recommendation.

It will pay you to investigate their application in <u>your</u> equipment... *call in a Gulf Lubrication Engineer today!*

Gulf Oil Corporation • Gulf Refining Company

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FIFTY YEARS OF SERVICE 1901 GULF 1951

PETROLEUM AND ITS PRODUCTS

Stephens-Adamson Marks 50th Anniversary— Reviews Eventful History

1951 marks the Stephens-Adamson Manufacturing Company's 50th year in the production of materials-handling equipment at their Aurora, Ill., plant. The company began operations in a single 80- by 120-ft. building in June, 1901, and today occupies a 13-acre site with 230,000 sq. ft. of plant space. Branch plants are located at Los Angeles, Calif., and Belleville, Ont., Canada, with sales offices in principal cities in the United States and throughout the world.

Through the last 50 years, Stephens-Adamson has made many important contributions to progress in the materials-handling field. In 1907 the company equipped the first commercially successful self-unloading bulk freight boat on the Great Lakes. That ship is still in service, along with a large fleet of others similarly equipped by S-A.

Among the accomplishments in the firm's 50-year history are the following: a bucket elevator rated at 1,000 t.p.h. (1910); anti-friction, ball-bearing-equipped belt conveyor carriers (1911); a pivoted bucket conveyor with automatic turnover bucket (1914); a specially designed carrier for a 4 1/3-mile belt conveyor installation (1922); marketing of Amsco manganese steel feeder (1924); introduction of centrifugal box-car loader (1927); introduction of Redler conveyor (1932); production of "Sealmaster" ball-bearing unit (1938); introduction of "Zipper" conveyors (1944).

National Gypsum's Outlook In Peace or War Called Good

National Gypsum Company production will continue at a high level during the first half of 1951 according to Melvin H. Baker, president. The company already has announced that during 1951 it will build a fourth paper mill in the Southwest and will construct major additions at some of its existing plants. The entire program will cost an estimated $10,000,000.

Commenting on the part National Gypsum might play in a stepped up military preparedness program, Mr. Baker pointed out that many of the company's products can be used directly in the war effort. He stated that because of the experience National staff members gained in the production of demolition bombs in World War II, the company has been asked to stand by for a call to take over management of the Nebraska Ordnance Works, one of the larger munitions plants kept intact after the war.

In the historic Copperopolis area of California asbestos deposits are attracting much interest. The Flintkote Company of East Rutherford, N. J., has begun developing the Voorheis property, which is said to contain a large deposit of commercial asbestos.

Charles F. Alexander

Industrial Manager Named For Nat'l. Safety Council

Charles F. Alexander, former assistant general manager of the Cherry-Burrell Corporation of Chicago, has been named manager of the Industrial Department of the National Safety Council. He assumed his new duties on February 1.

Mr. Alexander will head the Council's program of activities, which are aimed at further reducing the accident losses among the nation's workers. At present, the Council's safety program is said to be reaching 70 percent of all industrial workers.

Cover Picture....

• The Oglesby, Ill., plant of the Marquette Cement Manufacturing Company, pictured on our cover this month, is one of the largest in the country. Its cement silo storage capacity (center background) is approximately 1,200,000 bbls. At Oglesby, historic birthplace of the Marquette company, the first clinker was burned on February 16, 1899, under the supervision of the late Richard Moyle. The first shipment of Marquette cement was made on March 30, 1899, to Des Moines, Ia. Throughout the half-century of its career Marquette has seen production steadily increase, until at the last "census" a total annual clinker output of 8,500,000 bbls. was recorded.

Geist of Allis-Chalmers Famed Inventor-Executive Dies of Heart Seizure

The unexpected death of Walter Geist, president of the Allis-Chalmers Manufacturing Company, on January 29 brought to an untimely close a career which began about 40 years ago when Mr. Geist went to work for the firm as an errand boy at a wage of 10 cents an hour. The prominent Milwaukee industrialist suffered a fatal heart seizure.

Determined to improve his opportunities, the young errand boy studied in night classes and advanced to the post of a draftsman. By the time he was 30 years old, he had developed a multiple V-belt power transmission system for textile industries, an invention which is said to have earned an estimated $30,000,000 for Allis-Chalmers before the patents expired.

Demonstration trips with the V-belt system resulted in Mr. Geist's transfer to the sales organization of the firm, and in 1933 he became general sales manager of the general machinery division. By 1939 he was vice-president in charge of this division, and in 1942 he was made president of the company. Under his presidency the firm last year reported sales totaling $350,000,000.

For the duration of a 323-day strike against his firm in 1946-1947, Mr. Geist steadfastly refused to deal with a union which was reportedly communist-dominated. The strike collapsed after several incidents involving violence.

Halliburton Cement Co. To Add Dock Facilities

The Halliburton Portland Cement Company, which began operation near Corpus Christi, Tex., in March, 1950, has leased 7 acres of land for dock facilities to add to its 44-acre plant. The plant is located on the Port of Corpus Christi's Industrial Canal west of the main turning basin.

To achieve its 4,000-barrel-per-day capacity, the company uses the wet-process closed-circuit system, employing rake and bowl classifiers to grind oyster shells from the reefs in Nueces Bay. A completely equipped laboratory has control of the manufacturing process from the time the raw material arrives until the finished product is pumped into the 22 silos.

Perlite Products Corp. Moves into New Plant

Full-scale operation has begun at the new plant of Perlite Products Corporation in Cement City, near Dallas, Tex. Production of Permalite, a lightweight aggregate, began in December, 1950.

The 6,500 sq. ft. plant, which is constructed of prefabricated steel, can produce 1,500 bags of aggregate a day, each bag having a 4-cu. ft. capacity.

Perlite Products Corporation was incorporated in August, 1950, with a capital of $110,000. Looking to the future, the firm has provided space to add another furnace, which would double the plant's capacity.

J. B. John Heads Board Of Medusa—H. L. Berno Named Firm's President

The Board of Directors of Medusa Portland Cement Company recently elected J. B. John to the newly-created post of chairman of the board, elevating Harry L. Berno, former executive vice-president and general manager, to the post of president and general manager.

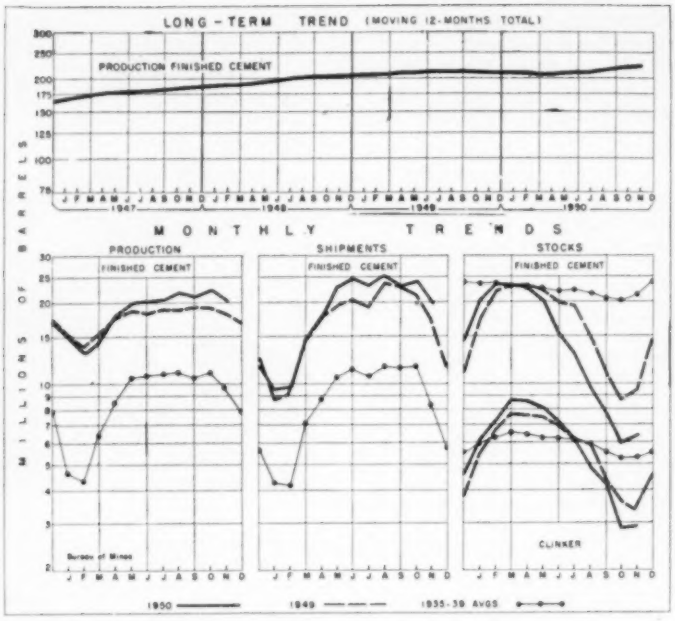
J. B. John

Mr. John's cement experience dates back to the year 1898, when he joined the Medusa organization. He had completed the construction of a new and revolutionary plant at Petosky, Mich., and was managing the Petosky Portland Cement Company, as well as the Newaygo Portland Cement Company, with which he became associated in 1913. He was working on plans for a new mill at Manitowoc, Wis., for the Manitowoc Portland Cement Company, a subsidiary of the Newaygo Company.

Just prior to the completion of Medusa's Toledo plant, Dr. Spencer B. Newberry, president of the firm, died, and Mr. John was appointed acting general manager. He was elected to the office of president and general manager in October, 1923. In 1929, with the acquisition of the Crescent Portland Cement Company of Wampum, Pa., and the merger of the Newaygo and Manitowoc Portland Cement companies with the Medusa Company, he became chief executive officer of the combined companies. His widespread experience as a builder and operator of cement plants has been of great benefit to Medusa.

He is the originator of the safety movement in the cement industry, having lifted that industry from the second most hazardous in the nation to the second least hazardous. He plans to continue active in the management of the company.

Mr. Berno came to Medusa in October, 1948, as vice-president and was elected executive vice-president and general manager on July 1, 1949. He was previously with Westinghouse Electric & Manufacturing Company in Mansfield, O., and was president of the Davey Steel Company in Cleveland. During World War II he served as a colonel in the army in India and Ceylon, and later in Germany.



SUMMARY—The output of 20,226,000 barrels of finished portland cement in November, 1950, as reported to the U. S. Bureau of Mines, was 12 percent greater than that for November, 1949. Mill shipments totaled 19,791,000 barrels—an increase of 15 percent over the November, 1949, figure, while stocks of 6,380,000 barrels were 32 percent below the total of a year ago. Clinker output during November was up 14 percent over the corresponding period of 1949 and amounted to 20,394,000 barrels.

PRODUCTION—150 plants located in 36 states and Puerto Rico produced 20,226,000 barrels of finished cement during the month, while 147 plants manufactured 18,040,000 barrels in November, 1949. As indicated above, clinker production was up 14 percent over the same month in 1949.

SHIPMENTS—Mill shipments of finished cement declined from the October, 1950, total of 24,167,000 barrels (revised) to 19,791,000 barrels in November, 1950. Shipments were greater in 17 and smaller in 2 districts than those recorded for November, 1949. The percentage changes range from a decrease of 2 percent in the Alabama district to an increase of 40 percent in the New York-Maine district. An increase of 29 percent was recorded for the Puerto Rican district.

STOCKS—Mill stocks of 6,380,000 barrels of finished cement were reported for November, 1950—32 percent below the November, 1949, figure, while stocks of clinker amounted to 2,907,000 barrels or 14 percent below the same month of the previous year.

$5,000,000 Phosphate Plant Going Up Near Butte, Mont.

A mineral deposit formerly considered too low-grade for practical commercial use will be developed in the rich Missouri River Basin by the Victor Chemical Works of Chicago, Ill., through hydroelectric power supplied by the United States Department of the Interior, it was announced by W. G. Sloan, retiring chairman of the Interior Missouri Basin Field Committee.

Victor is now opening a mine on the Maiden Rock phosphate deposit and constructing a $5,000,000 plant for processing the rock into elemental phosphorus in the vicinity of Butte, Mont. The new phosphate plant will be the second-largest industrial operation around Butte. The plant is being erected on 543 acres of land at Silver Bow, about seven miles west of Butte, at a junction of the Union Pacific, Northern Pacific and Milwaukee railroads.

Plant facilities, which will include an electric furnace and a kiln, are scheduled for completion in the fall of 1951. An administrative office and laboratory building, a shop-storeroom, an oil-paint storage building, five huge cylindrical bins for storing the mined phosphate rock, a clarifier for treating contaminated water, and a change house also will be built.

Estimated damage to a machinery shed of the Permanente Cement Company at its Monte Vista, Calif., plant was set at $75,000 after a fire on November 29. The blaze, of undetermined origin, damaged a monorail and automatic welding machinery and destroyed machine tools and a small truck.

• Scene at the Houston Shell and Concrete Co., showing 101-ft. truss bridge supporting the conveyor.

Shell-Sand Stabilization Speeded by Unique Setup

Due to the fact that the commercial gravel sources nearest to Houston, Tex., are some 80 miles away, and crushed rock sources even farther, the use of shells in roads and streets has been common for about a century in Houston and the rest of the Gulf Coast area. However, it is only in the last 20 years that any real improvements in its use have been accomplished. The most recent of these is stabilization with sand for use as a base for pavement.

At the plant of the Houston Shell and Concrete Company in Houston this stabilization is being carried out by mixing in a new Hetherington and Berner 81-cu. ft. pug mill. Sand of a commercial quality is dredged from the San Jacinte River near Houston. "Dead-Reef" oyster shell is dredged from the bottom of Galveston Bay. Both are moved by barge from the dredges to the Houston Shell and Concrete Company's dock on Buffalo Bayou. The economies of dredge production and water transportation dictate the use of these materials wherever possible.

At the company's plant the sand and shell are stockpiled at the dock side. From the stockpiles the materials are placed in 75-cu. yd. Blaw-Knox bins by a clam-shell crane, and from these bins are carried by a 24-in., 300-f.p.m. Hewitt-Robins belt conveyor to the pugmill supply bins.

Two of the unique features of this plant are the conveyor-supporting framework and the conveyor-discharge chute to the pug mill. The conveyor is carried on a light truss bridge for a clear span of 101 ft. which has a minimum head room of 10 ft. The lower end of the bridge is supported on a triangular thrust bent and the upper end on the pug mill framing. This arrangement is used since all traffic to the shell bins and ready-mix plant as well as the pug mill must pass underneath it.

The conveyor discharge chute has a counterweighted tilting unit which is operated by a single cable carried on the bridge to the supply bin platform. Light and conveyor motor control circuits are also carried on the bridge to this platform, making it possible for the crane helper to operate the conveyor system from dockside.

The conveyor span was designed by W. A. McCracken, consulting engineer, and was made by the Robins conveyor division of Hewitt-Robins, Inc., especially for the Houston Shell & Concrete Company.

Columbia Gypsum Products Serve Farms, Plaster Trade

According to Loren G. Brown, president of Columbia Gypsum Products, Inc., the firm's plant at Velox in the Spokane Valley, producing agricultural gypsum for soil conditioner and as a direct fertilizer on legume crops, will soon turn out plaster.

Mr. Brown stated that a calcining plant is in progress and that the plant when completed will have a capacity of 10 tons per day of hardwall plaster. He added that the gypsum rock comes by rail from Windermere, B.C., where the company owns a large deposit of high-grade rock.

National Gypsum Company Expands at Medicine Lodge

Construction of a multi-million dollar gypsum board plant and plaster mill has been started at Medicine Lodge, Kan., by the National Gypsum Company. Dudley C. Chade, manager of the plant, has announced that it will mean a $500,000 payroll increase when new facilities are completed.

National Gypsum acquired the present plant from Best Brothers in 1938. It has been producing Keene's cement and high-grade plaster for more than 50 years.

Two new calcining kettles and construction of a board plant building over 800 ft. long are included in the construction program.

P. B. Reinhold Nominated For A.R.B.A. Presidency To Succeed Col. Needles

Paul B. Reinhold, president, Atlas Equipment Corporation, Pittsburgh, has been designated as the official nominee for the 1951 presidency of the American Road Builders' Association.

This announcement was made at the Washington, D. C., headquarters of the country's oldest national good roads organization by Lt. Gen. Eugene Reybold, A.R.B.A. executive vice-president. Balloting on the nomination of Mr. Reinhold to succeed Col. E. R. Needles, New York consulting engineer, as head of the 49-year-old Road Builders organization, as well as on the following list of official nominees for other A.R.B.A. offices, will take place before the three-day annual meeting of the association which opens in Milwaukee on March 12:

For vice-presidents: Charles M. Noble, chief engineer, New Jersey Turnpike Authority, Trenton, N. J.; Charles W. Smith, president, Smith Engineering & Construction Co., Pensacola, Fla.; W. A. Roberts, executive vice-president, Allis-Chalmers Manufacturing Co., Milwaukee, Wis.; A. Diefendorf, head, Department of Civil Engineering, University of Utah, Salt Lake City, Utah.

Paul B. Reinhold

Mr. Reinhold entered private business in 1923, forming Reinhold & Company, Inc., in Pittsburgh. This firm marketed crushed stone and limestone products for highway and public works construction. For some years he was secretary and treasurer of the Pennsylvania Stone Producers Association. In November, 1935, he formed the Atlas Equipment Corporation, also in Pittsburgh. He is president and treasurer of this company, which markets industrial and road building machinery.

Sanderson, Manske Named To Important Posts In Natl. Gypsum Co.

Directors of the National Gypsum Company recently elected Lewis R. Sanderson executive vice-president and chairman of the policy committee. Fred

Lewis R. Sanderson

A. Manske was named vice-president in charge of manufacturing. The executive vice-presidency and the post of vice-president in charge of manufacturing are new positions. Mr. Sanderson succeeds President Melvin H. Baker as chairman of the policy committee.

Formerly vice-president in charge of operations, Mr. Sanderson will now be the second-highest ranking officer in the corporation and will act as immediate

Fred A. Manske

assistant to Mr. Baker. Mr. Sanderson will coordinate the company's activities in the rearmament program. He also will continue to supervise such operations as transportation, traffic activities, purchasing, labor relations, engineering, and production.

Mr. Manske, who has been general production manager, will direct manufacturing in National Gypsum's plants in the United States and Canada.

President Baker also announced the appointment of Wade W. Hildinger to the new post of director of trade relations, to co-ordinate company relations with trade associations and dealers. His headquarters will be in Buffalo. Mr. Hildinger has been with National Gypsum since 1942. He has been district sales manager in Dallas, Tex., since 1948.

1950 Construction Total Tops '49 by 40 Percent— December Volume High

A 40 percent increase over 1949 was the final figure for 1950's resounding construction boom in the 37 states east of the Rockies, as announced by F. W. Dodge Corporation. The total for 1950 was $14,501,055,000.

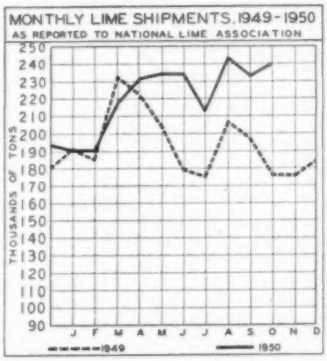
The strongest classification in terms of comparative gain was residential, which was up 59 percent over 1949, for a total of $6,741,028,000. Non-residential awards in 1950 totaled $5,181,595,000, which was an increase of 42 percent over the 1949 figure. Public and private works and utilities totaled $2,578,432,000 in 1950, or 4 percent more than the 1949 figure.

The December construction award total of $1,168,432,000 was 7 percent higher than the November, 1950, figure and 26 percent above that for December, 1949.

In December, 1950, non-residential awards totaled $490,375,000, an increase of 13 percent over November, 1950, and a gain of 62 percent over the December, 1949, total. Residential awards in December were $478,583,000 or 4 percent less than November, but 14 percent more than December, 1949.

Public and private works and utilities totaled $199,474,000 in December or 28 percent higher than November, but 4 percent below December, 1949.

Floor area totaled 1,313,879,000 sq. ft. in 1950, an increase of 51 percent over the 1949 total.



According to data collected by the National Lime Association, 47 companies in October, 1950, shipped 240,515 tons of lime (149,397 quicklime; 91,118 hydrate). Reporting companies represent 59.1 percent of the association members' total capacity of record. Based on Pit and Quarry's estimate for the remainder of the industry, the total shipments were approximately 447,700 tons. Shipments by uses and grades for October, 1950, were:

	Quicklime	Hydrate
Agricultural	6,070	10,430
Building	17,913	50,877
Chemical	125,414	29,811
Totals	149,397	91,118

Canadian Asbestos Workers Receive Wage Increases

Asbestos workers in the Quebec area mines will receive a 15 percent wage boost during 1951, under the terms of a contract signed by the Federation of Asbestos Workers and Johnson's Asbestos Company and Flintkote Mines, Ltd. Basic wages for employees in the mines will be $1.09 per hour.

Workers will also share in a social security plan, including a $2,500 life insurance policy for each and fixed sums for hospitalization and surgical costs.

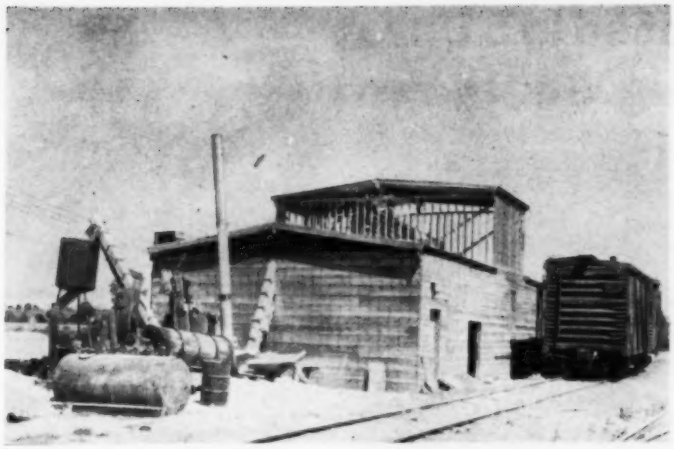
Gypsum Assn. Releases Sound Slide Safety Film

According to an announcement appearing in the National Safety Council's *News Letter* (Cement and Quarry Section), the first sound-slide safety film ever produced by the gypsum industry for use by plant foremen to bring the story of safety to employees was recently completed and is released through the Gypsum Association, 20 N. Wacker Drive, Chicago 6, Ill.

An actual accident case from the industry files was dramatized. Joe, a workman, is injured while doing his job the wrong way. After attending to his injuries, the doctor reviews the accident with Joe's foreman. The two men visit the place where Joe was hurt, and the foreman points out other potential accident-makers at various points in the plant.

A recommended plan for showing the film and discussing safety problems will accompany each film-package. The film runs 15 minutes, and the entire program is scheduled for 30 minutes. Details on cost and arrangements for renting or purchasing projectors will soon be released by the Gypsum Association.

Employees of the Iola, Kan., plant of the Lehigh Portland Cement Company who are paid on an hourly basis will now receive a monthly retirement pension upon reaching the age of 65 years. The plan, together with a disability program, was a part of a new contract signed recently with the United Cement Lime and Gypsum Workers International Union.



Idaho's Silica-Sand Industry Gets Its Start at Emmett

One of Idaho's new industries established in 1950, believed to be the first commercial silica-sand operation in the state, is the Gem Silica Company. Owned and operated by Ted Dewey and his brother, Del, the plant is located on the Payette River at Emmett, Idaho, a few miles northwest of Boise.

• Gem Silica Company's new plant at Emmett, Idaho.

The accompanying picture shows the plant building as it appeared in the summer of 1950 after processing operations had been under way for several months. The second-story portion, housing the screening equipment, has since been completed, as well as a protective structure over the drier.

The pit was opened atop what is known locally as "Freezeout Hill", about 5 miles south of the plant. The silica grains are cemented together for the most part in the deposit and chunks are dislodged by light blasting charges for loading into trucks.

The trucks discharge to a hopper at the plant from which the raw sand is first put through a 3- by 12-ft. oil-fired rotary drier. Reduction to grain size and fracture of the larger particles is done by 2-stage crushing, utilizing two sets of rolls. Enclosed vibrating screens make the separation. None of the material is subject to washing. Dust arising at the equipment during processing is drawn by fans to a curtain-spray collector house. All the equipment was designed and built by the Dewey brothers.

Products include poultry grit in the 4- to 16-mesh range; blasting sand (16- to 30-mesh), and finish-coat plaster sand (30-to 80-mesh). The three sizes of finished product are stored in bins fitted with bagging spouts. All three products are packed in 100-lb. paper bags and shipments are made, for the most part, by box-car throughout the Northwest and West.

Plant capacity is around 30 tons of finished sand (600 bags) per day.

"Hardy Hal" Is Christened In Quiet Texas Ceremony

"Hardy Hal" was the name recently given to an impish figure with a cement bag body and an oyster shell head. The christening was a quiet affair with only close relatives present. Officiating were Cash Asher, publicity director of Padre Island, Bill Eubanks, advertising executive of Central Power and Light Company, and Ben Weil, president of Ben Weil Advertising Agency. The youngster is the trademark offspring of the Halliburton Portland Cement Company, Corpus Christi, Tex.

• The prize-winning figure and name.

The name was selected after a lively contest among users of the company's product that brought hundreds of replies to the judges. The cartoon figure was created as a stimulant for the Halliburton company's advertising campaign. It is planned to make this figure as well known in the cement advertising field as "Elsie, the Borden Cow" is in the dairy field.

First prize in the contest was $500 awarded to C. C. McCleary, Lynch Davidson Lumber Company, Mission, Tex. Second prize of $300 went to R. R. Richter, L. B. Wehring Lumber Company, Corpus Christi, Tex., and third prize of $200 was won by Jose Mora, Farris Lumber Company, Mercedes, Tex. Presentation of the awards was made by William M. Taylor, Halliburton sales representative in the Rio Grande valley.

The figure was designed and used in the company's advertising for several weeks before the contest was announced. A large folder printed in red and blue ink was mailed to contractors, builders, dealers, engineers, and other directly interested in the construction field, announcing the contest. A handy reply card for submitting an entry was a part of the mailing piece. The number of replies showed the contest was creating considerable interest.

Design of the figure is intended to convey the picture of the company's cement sack and to lead to ready identification of it, while the oyster shell head refers to the material from which it is made. All Halliburton advertising will feature the figure.

• William M. Taylor (left) presents awards to C. C. McCleary and Jose Moran at the close of the Halliburton Portland Cement Company's name contest.

Mantle Hard-Faced in 5 Days Preventing Long Shutdown

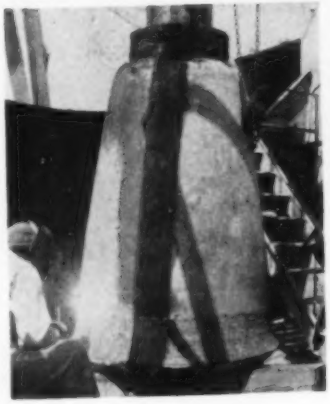
ONE of the important aggregates producers in the Los Angeles area is the City Rock Company of Sunland, Calif. Its 300-t.p.h. plant in Cottonwood Canyon is a highly efficient operation. Production has been at capacity levels in recent years in an attempt to keep pace with the unprecedented construction boom that continues unabated in the sprawling metropolitan area.

The company's Allis-Chalmers Type K-12 primary gyratory crusher reduces all the pit-run oversize, often in excess of 100 t.p.h. The big crusher, set to break at 2½ to 3 in., is the key machine in the plant flow-sheet, so when excessive wear became apparent on the mantle and concaves last summer, necessitating immediate replacement, the management immediately sought a solution to the problem.

New concaves were available, but at least a month would be required to obtain a new mantle, even with top-drawer expediting, since the pattern for the big part was back East. Meanwhile, all that production would be lost, right at the time when it was sorely needed. With such a long lay-off in prospect, most of the plant's experienced working force would seek jobs elsewhere. The outlook was gloomy, indeed.

But Superintendent Mike O'Brien refused to take the pessimistic viewpoint. He had for years resorted to welding and the application of hard-facings to repair and add life to crusher rolls, bucket teeth, and screen plate, and rebuilding the worn mantle challenged his imagination. It would mean applying a lot of weld metal, the diameter having worn about 4 in. Other considerations were the extreme size of the part (16,000 lbs.), plus the fact that a big truck jack had once got into the crusher and had to be cut out with a torch. During the cutting, the flame had heated the manganese mantle to such a high temperature as to alter the austenitic structure of the manganese steel.

Mr. O'Brien called in George Griffin, hard-facing expert attached to the Los Angeles office of the Victor Equipment Company. The mantle was checked magnetically to determine its manganese content. It was estimated that about 600 lbs. of rod would be needed, and that 150 hrs. of welding time would be required to complete the job. Concensus of opinion favored proceeding with the task, and Supt. O'Brien lost little time in pulling the mantle with the overhead hoist and setting it up vertically. The vertical position allowed more than one welder to work at the same time, to speed up the operation.



Meanwhile, the welding procedure was developed. The mantle was to be first "buttered" with a layer of Arcos 25-20 stainless-steel rod directly onto the manganese. The 25-20 was chosen because it has less tendency to crack after being deposited, at the same time establishing an ideal base for the hard-facing metal. After applying a bead about 12 in. long, the deposited stainless was peened vigorously with a Cleco pneumatic hammer to stretch the metal and set up the minimum strain on the mantle. Fortunately, no checks or cracks occurred in the buttering pass, indicating that the manganese had not been too seriously affected.

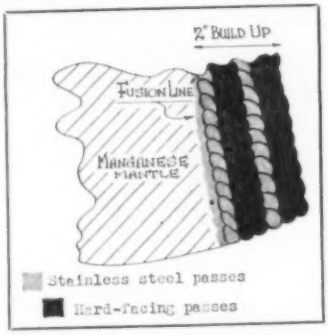
Previous work done at the plant influenced the choice of Ranite BX for the hard-facing applications which followed.

• The primary crusher back in operation. This photograph was taken five months after the mantle had been rebuilt.

• In this view the rebuilding of the mantle was nearly complete. About 600 lbs. of weld metal was used to make the mantle as good as new or better.

• Left: Mantle after the first pass of stainless steel was applied. Severe wear on the bottom of the mantle can be seen.

The BX, a development of the Rankin Manufacturing Company, Los Angeles, is a straight polarity rod which would keep the heat absorbed by the mantle at the minimum. Its rapid rate of burn-off, 6 to 7 lbs. per hr., required the least possible welding time. Comparative tests with other hard surfacings used at the plant indicated that it possessed the highest resistance to abrasion on crusher parts, outlasting some comparable applications by about 25 per-



• A sketch showing how the mantle was built up, using stainless steel and hard-facing applications.

cent. The fact that Ranite is an "all-position" rod, was also important since it was necessary to run the beads continuously around the mantle.

The technique employed was to run two passes of hard facing, with one pass of stainless sandwiched between, peening the deposits after each 12-in. application to stretch the metal and for strain relief. The function of the stainless layers was to serve as a cushion against impact, and to provide a tough, strong bond at every ½ in. of weld-metal thickness. Being a poor conductor of heat, it also kept the manganese mantle relatively cool during the job.

Three welders worked 8 to 10 hrs. per day for five days—and the job was done. They used 400 lbs. of ¼-in.

(*Continued on page* 81)

Cedarapids "Veteran" Returns from the Wars

A war-weary veteran of World War II has unexpectedly returned for brief hospitalization and rehabilitation to its birthplace, the Iowa Manufacturing Company, Cedar Rapids, Ia.

This seven-year old veteran, a two-unit Cedarapids crushing plant, was built by Iowa employees in commemoration of Louis M. Parks, Iowa Manufacturing Company's first casualty of World War II. Built of parts donated by the company and by 8,000 man-hours of work donated by Iowa employees, the 34-ton machine was started at 11 p.m. on December 18, 1943, and finished by the same hour the next day. It was named the "Spirit of Cedar Rapids".

Proudly bearing a bronze plaque dedicating the unit "in tribute to Louis M. Parks, missing in action", the crushing plant was given to the Army in December, 1943. Iowa Manufacturing employees asked the Army to let them know every 30 days if possible where the plant was and how it was performing. The Spirit of Cedar Rapids was shipped into action almost immediately, and soon reports were coming in regularly from the China-India-Burma Theatre.

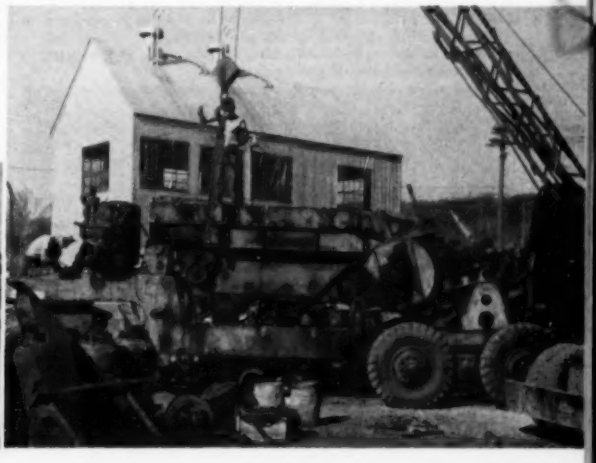
At the engineer depot in Assam, the equipment was assigned to an aviation engineer unit working on the Ledo Road, where this military highway started its last lap toward a link-up with the old Burma Road. It was shipped up the road with the first overland convoy to go into the jungles of Burma. Later reports told of the important part played by the machine in the vital work of helping provide all-weather roads and airstrips along the famous "Hump" in the CBI Theatre.

When peace came, no one at Iowa Manufacturing knew where the plant was or what had become of it until one day in October, 1949. A routine shipment of machines was returned to Cedar Rapids for overhaul and reconditioning. And there on the flatcar, battle-scarred and war torn, was the "Spirit of Cedar Rapids." Word spread quickly through the plant, and workers swarmed to the yards to see for themselves. There could be no mistake. The battered dedication plaque was still visible. The veteran was home again, but only for hospitalization, not retirement, for the "Spirit of Cedar Rapids" is still capable of years of service.

Iowa workers, many of whom helped build the machine seven years ago, started work immediately on "their machine" to get it ready for further duty. Now the "Spirit of Cedar Rapids" still bearing the bronze plate preserving the memory of the man who died 7 years ago, has again rolled out of the Iowa Manufacturing yards to carry on its war career. Iowa employees don't know where it's going, or when or if it will return. They continue to be quietly proud of the part they have played in showing the world that the "Spirit of Cedar Rapids" symbolizes the fighting heart of American workmen and manufacturers.

• Right: The battered "Spirit of Cedar Rapids" as it looked when it turned up at the plant on October 19, 1950, for reconditioning. It had played an important part in the C.B.I. Theatre and in the invasion of the Philippine Islands.

• Below: Dedication ceremonies on December 22, 1943, when the "Spirit of Cedar Rapids" was presented to the United States Army in memory of Louis M. Parks, a former worker at the Iowa Manufacturing Company.



Charles Boettcher Fellowship Awarded to A. A. Schilt

The Charles Boettcher Fellowship award of $1,200 which is given annually to an outstanding student at the University of Colorado was awarded this year to Alfred A. Schilt, a graduate student in chemistry.

Chris Dobbins, executive vice-president of the Ideal Cement Co., presented the award to Mr. Schilt on December 4, 1950. The Ideal Cement Company gives the memorial award each year in memory of Claude K. Boettcher, founder of the company and its president until his death.

The project on which Mr. Schilt will work is aimed at exploring alkali reaction, to devise a quick way of testing the efficacy of aggregate being used in concrete. Dr. F. H. Rohrman, executive director of the university's experiment station, is overall director of the project.

Homemade Safety Device Developed by Lehigh Drillers

H. G. Collins, safety and welfare manager for the Lehigh Portland Cement Company and chairman of the National Safety Council's visual aids committee, announces a safety device employed by his firm's jackhammer drillers at the Sandt's Eddy plant.

Says Mr. Collins, "The purpose of the device is to keep chips or dust from flying up from the jackhammer drill bit. It consists simply of a piece from a truck tire 'flap' or liner, cut about 6 in. square. A hole is cut in the center, slightly smaller than the drill steel, so that it will stay in place on the drill."

Slag Abrasives in 10 Sizes Offered at Copperopolis

Crushed slag from the abandoned blast furnace operations of the Calaveras Consolidated Mining Company, Ltd., at Copperopolis, Calif., is being marketed as an abrasive by a newly formed organization headed by John Johnson.

The slag is crushed and graded into ten sizes for applications in sand blasting. It is said to be superior to blasting sand because of its greater hardness and sharpness. To the present time the government has been the largest consumer of the plant's output.

Healthy growth of business in Kaiser Gypsum's Long Beach (Calif.) branch led to the decision to move the sales offices to roomier quarters. New address of the sales offices: 148 South Robertson Blvd., Beverly Hills. Kaiser Gypsum accounting offices have been moved to 385 Grand Avenue, Oakland, Calif.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

AS might be expected, industry convention announcements and reports dominated the February, 1921, issue of PIT AND QUARRY. Among those reported on was the meeting of the National Association of Sand and Gravel Producers in Louisville, Ky., on January 12, 13 and 14. The association was reported to be in good financial condition and added over 50 new members in the preceding year. Prominent in the discussions were: V. O. Johnston, president; John Prince, treasurer; E. Guy Sutton; and Miss Hazel Cummings, a producer from Urbana, Tex., who told of "The Vicissitudes of a Sand and Gravel Woman". Other reports had to do with freight rates, car supply, specifications, cost accounting, etc. The subject which received the most attention, however, was the suggestion that all producers of mineral aggregates be admitted to membership in the association. This issue was thoroughly discussed from all angles and then unanimously voted in as an amendment to the constitution. This step was taken, it was stated, primarily because so many crushed stone producers requested that they be admitted to membership.

At the meeting of the National Agricultural Limestone Association at Columbus, O., on January 12 the chief accomplishment was a new constitution which widened its sphere of activities. Clyde Calvin was elected president.

The Ohio Sand and Gravel Producers' Association, which met on January 19 and 20 at Columbus, O., elected Fred Hall of Cincinnati as president. The Illinois Sand and Gravel Producers' Association, which met in Chicago on January 25, amended its constitution to include crushed stone producers and changed its name to the Illinois Concrete Aggregate Association. M. B. Schaff was elected president.

The National Crushed Stone Association announced a change of dates for its convention, to be held at Toronto, Ont., on February 7, 8 and 9. An interesting and varied program was promised.

New plants described in this issue included that of the Watertown Stone Products Company, Inc., at Watertown, N. Y., the Carolina Sand & Gravel Company, Carthage, N. C., and the Bloomfield Washed Sand & Gravel Company, Bloomfield, Ind. The last-mentioned article was written by Victor J. Mill, then dredging engineer with the Morris Machine Works.

One of the many news features told of the progress being made on the construction of a new cement plant near Davenport, Ia., by the Western States Portland Cement Company. This was to be a 4-kiln plant, but was never completed beyond the foundation stage. The writer got his first experience in cement plant construction as a member (rod and chainman) on the engineering crew at this project while on vacation from college.

It was reported in this issue that the Alpha Portland Cement Company had purchased the plants of the Burt Portland Cement Company at Bellevue, Mich., the Ironton Portland Cement Company at Ironton, O., and the La Salle Cement Company at La Salle, Ill. The Texas Sand and Gravel Company had taken over the property of the Potts-Moore Company near Waco, Tex. The Western Lime & Cement Company had been formed with a capitalization of $1,200,000 to take over several lime and stone plants in Wisconsin.

Other outstanding articles included a very complete report on the mining and preparation of tripoli by Raymond B. Ladoo, then mineral technologist with the U. S. Bureau of Mines.

A Bull in a China Shop

By R. L. MULLER

Secretary and Assistant Manager
Honolulu Construction & Draying Co., Ltd.
Honolulu, Hawaii

You know what we mean when we speak of a bull in a china shop. We are operating a basalt rock quarry (commonly known in the U.S.A. as a trap rock quarry) right in the heart of Honolulu, a situation not unlike that of a misplaced Ferdinand.

To begin with, at the time our crushing plant was set up and quarry operations began, we were "out of the country" in the Moiliili section; but as all cities will do, Honolulu grew, and rapidly. Our original mill and quarry site is now completely surrounded by stores, residences, churches, and public institutions, including the University of Hawaii and the Humane Society! Not too much imagination is required to realize that we have had a continuing and sensitive problem in the field of public relations.

The unprecedented construction program beginning in 1940 with several new drydocks at the U. S. Navy Pearl Harbor Base and increasing tremendously after the Pearl Harbor attack practically wiped out our rock reserves. By 1946 we could see that the end of the Moiljii rock supply would be reached late in 1949.

The company had another partially developed quarry site in Palolo Valley, some 3½ miles away from the Moiliili crushing plant, with rock reserves estimated at 1,000,000 tons. This site was also in residential Honolulu. Moving the crushing plant was out of the question

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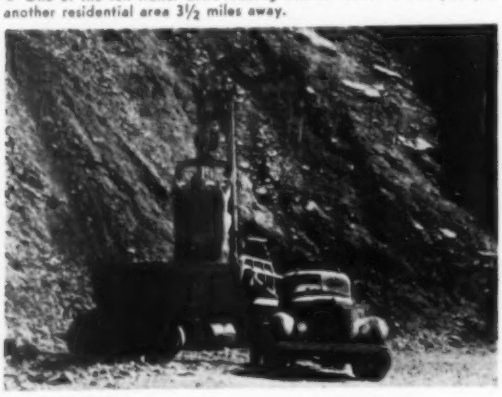
• Right: A side-dump trailer dumping its load at the primary crusher in the heart of a residential section of Honolulu.
• One of the ten trailer units loading boulder stone at the quarry in another residential area 3½ miles away.



Eastern Sand & Gravel Producer Profits from Close Attention Paid To Quality, Service and Safety

By WILLIAM M. AVERY

another ON THE SPOT report

ONE of the best operated and best maintained sand-and-gravel plants we have seen in some time is the Don C. Russo installation at Pittsford, N. Y., a small community located about seven miles southeast of Rochester. The 80-acre property, which has been worked almost continuously for the past 50 years, was purchased by the present owner in 1941. Careful attention to routine maintenance, periodic purchases of new equipment, and a recent rebuilding program have resulted in steady improvement to the plant facilities, and an equally notable rise in productive efficiency.

The deposit is the sort that sand-and-gravel men dream about, with excellent fine, medium, and coarse grades of material conveniently segregated in various locations. This makes it possible for the company to produce material to meet virtually any specification with the minimum of blending.

Overburden, consisting mainly of loam, varies from 5 to 10 ft. in depth. The company periodically rents a Caterpillar D8 bulldozer for stripping, the sales of dirt more than paying for this additional operating expense.

• General view of the Don C. Russo sand and gravel plant at Pittsford, N. Y. Indicated conveyor at the left carries material from the primary crusher to the upper screen.

Since the material shows a marked improvement as recovery operations go deeper into the pit, the bank in most sections varies from 50 to 80 ft. in depth. To facilitate bringing down material from this height without the risk of burying the shovel in undercutting the bank, the company carries on regular drilling and blasting operations. For some time the holes were drilled with hand augers, but the work is now done with a Buda power-operated earth borer.

• The conveyor and primary crusher seen from the top of the plant.

At the time the accompanying pictures were taken, loading in the pit was handled with a Bay City Model 30 heavy-duty shovel mounting a ½-cu. yd. bucket. A machine of the same make, but of larger capacity, has been ordered and may now be in service. About 100 truckloads a day, totally about 1,000 tons of material, are sent to the plant. In addition to this, varying amounts of bank-run material are loaded each day.

Since most of the material is recovered from a portion of the deposit which is only some 600 ft. from the plant, haulage is normally handled by just two trucks—an International K-7 of about 9 tons' capacity and a White WA-20 of about 11 tons' capacity. In addition to these units the company operates a Ford F-8 truck for hauling material from the plant bins to stockpiles and a Ford F-7 for deliveries. Mr. Russo pointed out that the latter unit has covered some 45,000 miles in delivery operations with exceptionally little maintenance cost. It hauls 10 tons at a time, as compared with 12 tons for the F-8 unit.

• Left to right: Don C. Russo, owner; Mrs. Russo, who takes care of the office work; and Eugene Felluca, plant superintendent.

• A close-up of the shovel loading one of the trucks.

At the feed end of the plant the trucks are backed onto a 10-in. thick reinforced concrete slab, which has a slight pitch toward the hopper in order to keep the truck bodies absolutely level. A 20-in. wide Diamond reciprocating feeder discharges the material into a 36-in. diameter by 15-ft. long Telsmith rotary screen. Plus 2-in. gravel scalped from the flow at this point drops into a 15- by 30-in. Acme Road Machinery motor-driven jaw crusher, rejoining the main flow of material on an 18-in. by 210-ft. inclined belt conveyor which feeds the washing and screening plant.

The plant proper is so arranged that all material larger than ½-in. (i.e. 90 percent or more of the total) is eventually crushed. A 4- by 12-ft. double-deck Seco vibrating screen at the top of the plant has perforated plate with ½-in. diameter openings in the upper deck to accomplish this second scalping operation. The oversize goes to a heavy-duty Stedman No. 30 impact crusher which is driven at 1,000 r.p.m. by a 40-hp. motor. This material is then rescreened over a 3- by 10-ft. triple-deck Seco vibrating screen, and the various sizes drop into the bins below.

The material is thoroughly washed at both vibrating screens and at the impact crusher to assure absolute cleanliness of the end products. Water for this purpose is pumped from a nearby canal with a Gould 700-g.p.m. centrifugal pump. Sand is recovered by two 42-in. wide by 27-ft. Columbia wash boxes which are supported on brackets at either side of the plant. There is also a screw washer for the recovery of masons' sand.

The screening plant is mounted directly over three two-compartment Butler bins which have a total capacity of about 400 tons. Insofar as possible delivery trucks are loaded directly from these bins, but since large stockpiles are maintained of the sizes of material for which there is most demand, considerable rehandling is inevitable. The whole problem of stockpiling is simplified, however, by the utilization of a worked-out pit adjacent to the plant proper as a storage area. Thus materials to be stockpiled are trucked from the plant bins to the high bank which overlooks the storage area, and from that vantage point are dumped into stockpiles of almost unlimited capacity. A Haiss bucket loader mounted on rubber tires is used for reclaiming the stockpiled

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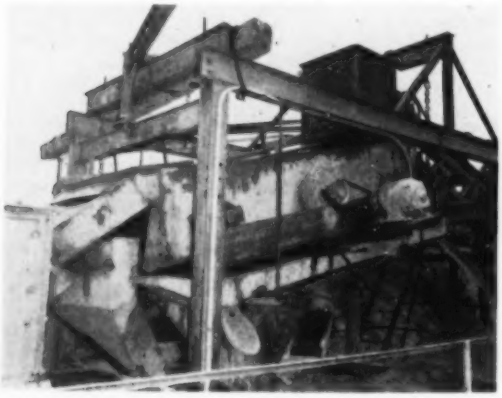
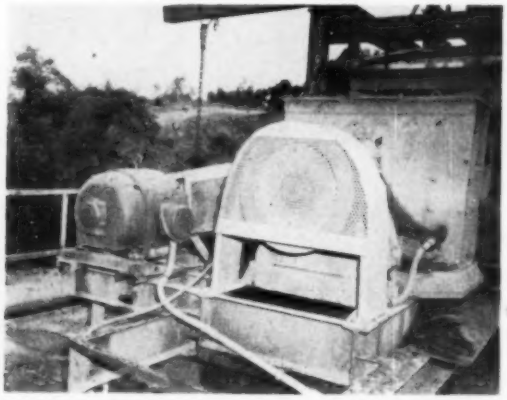


• The 4- by 12-ft. double-deck vibrating screen at the top of the plant. Note spray pipes, just visible above the screen.



• The heavy-duty impact crushers through which all plus ½-in. gravel is passed. Material is washed in the crusher as well as at the two screens.

Sixth Convention of N. A. L. A. At Washington Called Outstanding Success

By WILLIAM M. AVERY

another ON THE SPOT report

MORE than 300 members, associate members, and guests of the National Agricultural Limestone Association attended that organization's sixth annual convention at the Statler Hotel in Washington, D. C., January 16 to 18. The three-day meeting, which covered a wide range of business and technical problems, included addresses by such well-known individuals as R. M. Evans, member of the Board of Governors of the Federal Reserve System, Major General Lewis B. Hershey, director of Selective Service, and George H. Christopher, recently appointed assistant to the director of ACP, PMA Branch, Department of Agriculture. Other high spots of the program included an exceptionally well-conducted round table discussion on operating problems, and an address entitled *Lime Plus Fertilizer by Prescription* by Les W. Hayes, president of L. W. Hayes, Inc., Kansas City, Mo.

Legislative Report John M. Deely, chairman of the association's legislative committee, reported at the opening business session on the great improvement which has been brought about in the understanding of N.A.L.A. objectives among senators and congressmen. He said that even those congressmen who have little direct interest in agriculture have acquired a sympathetic understanding of the conservation program. A major factor in bringing this about, Mr. Deely believes, has been the association's willingness to submerge selfish interest in favor of a broad, constructive approach to the entire problem.

The most important function of the legislative committee, the speaker explained, is in the field of education. Educational programs, he pointed out, are of necessity long-range affairs, and progress must be judged by standards somewhat different from those which apply to other association activities.

Percentage Depletion In his brief report on the status of percentage depletion Cale P. Haun expressed the view that the agricultural limestone industry is the victim of discrimination under the present interpretation of the law. A percentage depletion allowance of even 5 percent, Mr. Haun said, would be of vast help to the industry.

Secretary's Report In his report as executive secretary, Robert M. Koch referred to the present membership of N.A.L.A. as a fine base from which to go forward. He looks for steady, healthy membership growth in the years ahead.

Mr. Koch is hopeful that there will be no reduction in the $285,000,000 allowance for the conservation program in 1952. He pointed out that this was one of the very few non-defense items which were not reduced before the budget was presented to Congress. He believes the appropriation will stand at that amount unless Congress should decide upon an across-the-board cut in all non-defense items. If such a cut were made, Mr. Koch expressed doubt that it would exceed 10 percent.

The speaker recalled that limestone tonnage increased during World War II largely due to the shortage of superphosphate. The same situation will probably develop again, he said, if the economy is placed on a full war-time basis.

• Left: W. A. Wilson, Pit and Quarry Publications, New York, and Jules Jenkins, Vibration Measurement Engineers, Chicago.

• Right: Alvin R. Armbrust, Fayette Limestone Co., Washington Courthouse, O. and Clarence A. Munz, Eastern Rock Products Corp., Utica, N. Y.

•Robert M. Patton, Plum Run Stone Division, New York Coal Sales Co., Columbus, O.; Robert M. Koch, executive secretary of N.A.L.A.; and B. F. Taylor, Cowan Stone Co., Cowan, Tenn.

Economic Situation The principal speaker at the first of two luncheon sessions was R. M. Evans, member of the Board of Governors of the Federal Reserve System. In a thought-provoking discussion of the present economic situation, Mr. Evans analyzed the causes of inflation and the available means of combatting it. Today's inflation, he said, is a credit inflation, and history has shown again and again that there is no easy or pleasant cure.

In the long run, Mr. Evans said, the only sound policy is to curb inflation by striking hard at its source, which is excessive credit. Unless this is done, it is almost useless to impose price and wage controls, for such controls merely pave the way for the creation of black markets.

According to Mr. Evans, one of the best ways to curb expansion of credit is to increase taxes enough to place the present defense program on a pay-as-you-go basis. Only in this way can inflationary purchasing power be curbed. He expressed the view

that Congress will never levy an adequate, inflation-curbing tax program unless it knows that the public fully supports such a program.

Operating Problems Representatives of about a dozen equipment manufacturers comprised the panel of experts for a round table discussion of operating problems under the chairmanship of Robert Patton. This interesting session got under way with a question from the floor regarding the sharp increases which have been made in the price of paper bags since last August.

A representative of one of the companies in this field explained that one of the chief factors has been the considerable increase in world pulp prices. He said that there is a severe shortage of pulp, and that users are now receiving shipments on a month-to-month basis and on month-to-month prices. He also mentioned the tremendous increase in the demand for multiwall bags, and he admitted that it has been virtually impossible for manufacturers to increase productive capacity as rapidly as required.

Vibration Measurement Jules Jenkins of Vibration Measurement Engineers was asked to present a general discussion of his company's service, since it was unfamiliar to most of the producers present. He explained that some 20 years of experience in measuring earth- and air-borne vibrations has created the new science of seismological engineering. One of its most important applications to quarry operations, Mr. Jenkins said, is in litigation involving alleged damage to adjacent property. In this connection he pointed out that apart from concussion and heat, the first atomic explosion at Los Alamos, N.M., did not create enough earth movement to break plaster at a distance of 1300 ft. from the epicenter of the blast.

According to Mr. Jenkins, each quarry has individual characteristics which must be determined by actual measurements. Asked regarding the acceptance of such testimony in litigation, Mr. Jenkins replied that he has appeared in 13 states so far, and that courts have generally accepted the evidence presented.

Another producer asked if vibration measurements could be used to improve blasting efficiency in a quarry. Mr. Jenkins replied that with the millisecond type of delay cap it is now possible to use seismological studies to determine the type and pattern of blasting best suited to a particular deposit.

• Mrs. L. W. Hayes, L. W. Hayes, Inc., Kansas City, Mo., and Edward Brunenkant, assistant executive secretary of N.A.L.A.

Pulverizing A general discussion of grinding and pulverizing brought out several interesting points. The machinery men seemed to agree that an air-swept ball mill is probably the best equipment to use in reducing a minus ⅜-in. unmarketable product into a superfine material salable as mine dust.

A producer expressed the opinion that it pays in additional tonnage to dry material ahead of a grinding mill. As against a production of 6 to 6½ t.p.h. with an undried product in a small mill, he reported increasing output to 7½ t.p.h. by the installation of a rotary drier. He also reported that the mill required less maintenance, and that it ran considerably cooler when dry material was fed to it.

Spreaders Representatives of several manufacturers of spreading equipment were given an opportunity to discuss the advantages of the types of machines which their companies produce. It was brought out that although the spiral type of spreader was designed primarily for fine, dry material, it has been found possible to handle moist, coarse material by making certain changes in the spirals, and by using special coatings in the distributor tubes.

It was said that the chain-drag type of tube distribution makes it possible to handle wet or dry, and fine or coarse material, since it can spread anything that will come out of the truck body. It was claimed for this type of equipment that it has the advantage of being able to handle fertilizers.

A maker of the spinner-type machine pointed out that double-disk spinners work well with either fine or coarse materials, and that they do a good job of spreading superphosphate and other fertilizing materials. One of the producers present stated that with proper body design and the use of a wide chain, the double spinner is still a very effective means of spreading.

Welding The representative of a manufacturer of welding supplies discussed the outlook for materials in this field. He pointed out that many types of welding rod are already in short supply due to the scarcity of the metals used in them, and that this situation is certain to become more acute in the months ahead. Surfacing materials for both hand and machine use will also be in great demand as more concerns employ this method of salvaging worn parts.

Lime Plus Fertilizer Probably one of the most interesting papers presented during the convention was *Lime Plus Fertilizer by Prescription* by Les W. Hayes of L. W. Hayes, Inc., Kansas City, Mo. Although this development was covered in some detail in the November issue* of Pit and Quarry, Mr. Hayes' paper is covered here for the benefit of those who may not have access to our earlier report.

The speaker pointed out that the problems of handling fertilizers are much more complex and much costlier than those which arise in connection with handling agricultural limestone alone. Agstone and fertilizers are allied to each other in that they are soil neutralizers, and for this reason, and because agstone producers have the sales forces, the customer lists, truck spreading services, and a wide acquaintance among potential users, it is logical that this industry should develop an interest in the fertilizer business.

In the Kansas City area, Mr. Hayes said, agstone prices have gradually dropped during the last ten years, largely due to the tremendous competition among truckers. His company decided to offset the loss of income due to this factor by engaging in the fertilizer sales business. Investigation revealed that the average rock phosphate requirement was about 1,100 lbs. per acre, and that almost every field was deficient in nitrogen or potash, or both.

It was decided that the best service could be rendered to the farmer

*See Doll, Paul N.: *Custom-Made Fertilizer*, Pit and Quarry, November, 1950, page 113.

by offering him a blend of materials based on the actual needs of his fields. Experiments indicated that agstone could be added to other soil nutrients without chemical reaction, provided that the mixture could be spread within a short time after the materials were blended.

The mixers used by the fertilizer industry seemed unsuitable, and feed mixers appeared to be insufficiently rugged to handle heavy, abrasive soil nutrients. Two bulk cement carriers, built for another purpose during the war, were found to make ideal mixers when transmissions were added to reverse the direction of the tanks, and feed hoppers were attached. Chain-type spreaders, manufactured by Hercules Steel Products Co., were used on these units.

Because it was found that soil testing by public agencies in the area required considerable time, the company set up its own laboratory to render one-day service. This proved to be one of the least costly, as well as one of the most valuable steps in the entire development. Tests are now made for calcium, nitrogen, phosphorus, and potassium, and additional equipment will soon be acquired to test for trace elements as well.

The prescription service was established on the basis of selling only to those farmers who were interested in bringing soil back to 100-percent fertility level. This policy was adopted because it was felt that only by doing the complete job could the customer reap the benefits for which he was paying. It has been found that the cost of restoring 100-percent fertility level varies from $20 to $50 per acre. It is expected, however, that the return to the farmer will range from $5 to $7 for every dollar spent.

Mr. Hayes said that in Harrison County where his quarry is located there are 265,000 acres of cropland and pasture. According to tests it would require not less than 280,000 tons of rock phosphate to restore the phosphorus level to 100 percent. Not less than 30,000 tons of ammonium nitrate would be needed to restore nitrogen to the ideal level, and the potassium deficiency calls for 12,000 tons of muriate of potash. At today's prices the cost of these three materials alone would total about $7,000,000. Since this potential market exists in just one average Missouri county, Mr. Hayes feels that the over-all potential in the prescription fertilizer field is tremendous.

He believes that the technical problems involved in establishing a service of this type are not serious, and that the costs were high in the case of his own company's venture because there was no previous experience to draw upon. He pointed out that the success of such a venture probably hinges upon the amount of effort that is put forth in merchandising. His company's publicity program in connection with the fertilizer prescription service includes radio, newspaper advertisements, and brochures, and there is some thought of utilizing television.

• M. Foonberg, Acme Materials Co., Tulsa, Okla.; J. H. Kaiser, Solvay Sales Division, Allied Chemical & Dye Corp., Syracuse, N. Y.; and George W. Mintz, Michigan Limestone & Chemical Co., Buffalo, N. Y.

Selective Service In his good-humored discussion of selective service and its probable effects upon industry, Major General Lewis B. Hershey proved rather conclusively that the problem of selective service boils down to trying to build an army without drafting anybody. He pointed out that about 38,000,000 of the present 150,000,000 population of the United States are 14 years old or younger, and that another 15 or 20,000,000 people are beyond the age of military usefulness. Some 2,700,000 of the men now under 26 are exempt because they are veterans, and there is no prospect of an early change in this feature of selective service.

The available manpower pool is further reduced by deferments for dependency, General Hershey said, and the rank of the 4F's are growing just about as fast as the armed forces themselves. If the age limit were increased to 35, a questionable move at best, it would become necessary to register 12,000,000 men in order to obtain an additional 100,000.

General Hershey believes firmly that selective service works best when it is administered by local authorities. Although individual local boards may meet their quota requirements in entirely different ways, he feels that this very non-uniformity is one of the heritages for which we are preparing to fight. As long as everybody is dissatisfied with the job being done, General Hershey said, there is every reason to believe that selective service is on the beam. It is far better, he said in conclusion, to solve the problems on the local level than in Washington, for when men must go too far from home to obtain justice, the chances are good that they don't deserve justice anyway.

Agriculture's Challenge Harold K. Hill, assistant administrator for production, Production and Marketing Administration, spoke at some length on the position of agriculture in the over-all defense picture. Pointing out that P.M.A. was formed largely from a reorganization of groups of World War II agencies, Mr. Hill said that very few changes will be needed now to take over the job of co-ordinating agricultural production with the present defense effort. In order to meet the needs of industry, and to assist in obtaining necessary materials and facilities, two new offices have been formed under P.M.A.: the Office of Requirements and Allocations, and the Office of Materials and Facilities.

One of P.M.A.'s most important immediate jobs, Mr. Hill pointed out, is to see to it that farmers produce sufficient quantities of vitally needed foods in the months ahead. He assured his audience that there is no thought of abandoning the conservation program, for it is vitally needed if agriculture is to meet the present challenge.

Annual Banquet The principal speaker at the association's annual banquet was assistant ACP director George H. Christopher, whose subject was *Lime and Our National Economy.*

Drawing upon his own experience as a farmer in Missouri, Mr. Christopher painted a sober picture of the serious damage which neglect has inflicted upon the once-rich soil of this country. Our nation is bleeding today at every river's mouth, from Vancouver clear around to the mouth of the St. Lawrence, and half

• Left to right: C. L. Rosselot, Even Spread Co., Owensville, O.; H. A. Wendler, Highway Equipment Co., Inc., Cedar Rapids, Ia.; G. N. Rule, Hercules Steel Products Corp., Galion, O.; Hilton Weinig, Hammond Bag & Paper Co., Wellsburg, W. Va.; W. C. Varey, Hammond Bag & Paper Co.; R. M. Patton, New York Coal Sales Co., Columbus, O.; G. E. Yates, Stoody Company, Whittier, Calif.; A. T. Glynn, Sturtevant Mill Co., Boston, Mass.; J. K. Towers, Hardinge Co., Inc. York Pa.; C. W. Mayer, Bradley Pulverizer Co., Allentown, Pa.; C. R. Atherton, Atherton & Evans, Annville, Pa.; and J. E. Jenkins, Vibration Measurement Engineers, Chicago, Ill.

of our top soil is already in the bordering oceans and the Gulf of Mexico.

India, Korea, China, Manchuria, Formosa, Burma, and Indo-China, Mr. Christopher said, have about four-tenths of an acre of land per capita that is fit to produce food. Russia has about six-tenths of an acre per capita. Despite some 200 years of neglect, the United States still has about 3½ acres of good, agricultural land for every man, woman, and child in the country. If we had 1,300,000,000 million people instead of 150,000,000, our population density would be the same as India's, and our people would be starving, just as people are starving in India and China today. Our abundant heritage of fertile land, the speaker said, is held in trust for our children and grand-children, and it is a solemn duty to pass it on to them intact.

Mr. Christopher described some of his own personal experiences with the use of agricultural limestone on his own farm. On one 50-acre field lime and sweet clover raised the wheat yield from 12 to 38 bushels per acre, improved the texture of the wheat, and increased its protein content. Soil conservation is not, as some people believe, just the farmer's business. It is everybody's business, since we are all dependent upon farm produce for our survival and well being. There are no new frontiers to move to, Mr. Christopher said, and no new river valleys to exploit; we live or die right where we are. The men who grind limestone are trying to do something about it.

Officers At a special session during the meeting at Washington the board of directors of N.A.L.A. re-elected all the officers who served in 1950.

• Wash boxes for sand are mounted on brackets on either side of the plant, and can be readily lifted off for winter overhaul.

The screening plant itself is not enclosed, primarily in order to have easy access to the equipment for maintenance and repair work. This makes it possible, for example, to lift the wash boxes off the plant in order to overhaul them during the winter months. The company has its own well-equipped shop, housed in a new 30- by 50-ft. concrete block building, for maintenance and repair work. Major overhaul work is done during the winter when the plant is shut down.

The Russo business has been built up largely by giving courteous service to many relatively small customers. This practice, in combination with the excellence of the materials produced, has helped to build a secure, steady market.

Don C. Russo Co.

(*From page 58*)

materials. Other auxiliary equipment used for loading and cleanup work includes a Caterpillar D2 bulldozer and a ¾-cu. yd. Osgood shovel.

The company takes a great deal of pride in its excellent safety record, as a result of which it has one of the lowest compensation insurance rates in the state. Well designed steel stairways give access to all points in the plant which must be visited regularly in connection with operations or maintenance work, and adequate guard rails have been provided at every spot where a potential hazard exists.

• One of the company's trucks being loaded from a stockpile with a wheel-mounted bucket loader of 3-cu. yd. per minute capacity.

Compressed Air Receivers

By PAUL C. ZIEMKE

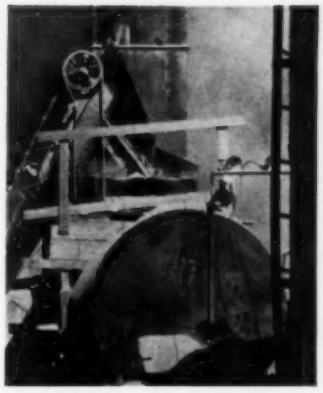
COMPRESSED air is now so universally used in industry that we are a bit inclined to take a few too many things for granted in the maintenance of the dispensing equipment. As in the old days of steam, when every plant had a boiler and an engine as the prime mover, with a more or less efficient crew which sometimes hung extra brakeshoes on the safety valve, we now have the same type of individuals who take like liberties with compressed air equipment.

The installation usually found to be the most neglected is that of the smaller plant, where the bare functional necessities of operation are the only ones performed, such as maintaining the water level in the radiator of the engine, replenishing the fuel supply, and keeping the crank-case oil level up to the prescribed value. Such compressors are almost automatic in operation and will run with but a minimum of care under most circumstances. It is this very fact that often lulls plant owners into a false sense of security, and they are not aware of some serious risks involved when certain fundamental considerations are neglected.

Primarily, the installation and maintenance of pressure relief devices at critical points in the system are needed, and the presence of water in the form of condensate must be given serious consideration lest accumulations cause hidden damage. Not only does the water reduce the capacity of the distribution system, but the rusting and the electrolytic action may cause disastrous corrosion. Freezing, too, is a factor to be considered where air lines are subjected to low temperatures.

In this connection it is important to mention that protection must be offered the low-point drain cocks on the outdoor receivers, to prevent freezing and bursting. The cocks may become inoperative due to the ice in them. Steam leaders are effective where steam is at hand, and electric heating devices serve in all other installations. The act of blowing down should be made an item in the daily log. This vital function should not be left to chance.

Not too well known is the fact that where condensate is left in receivers for long periods, a peculiar type of electrolysis is established under ideal conditions of temperature, water and acid oil conditions. Examination of such a receiver which ruptured with great violence disclosed most intensive etching of the metal at the water level line. This large unit was located adjacent to the compressor house, and the low-point cock was connected to a long rod extending into the building. It was equipped with a steam leader to prevent freeze-ups, yet not one but both shifts of operators had consistently failed to blow down the condensate.



• A welded receiver at an aggregate bituminizing plant.

Still another hazardous feature about water-clogged air lines is the tendency to develop serious water hammer when sudden demands for air are registered. Slugs of water are often projected through the lines with the force of rifle bullets, with resultant serious damage to the pipe lines.

Water entrained in the air is also a very detrimental medium for ruining the best intentions of the lubrications engineer, since the water emulsifies the oil in all the air-powered equipment and carries it out through the exhaust.

For northern operations such wet air tends to accelerate the freezing which automatically occurs at the exhaust ports as the air expands.

Distribution lines should be laid out with an eye to proper drainage, with no sags permitted anywhere along the main or lateral legs to collect condensate. This may mean underground receivers at low points, with their respective low-point blow-down cocks. If in such installations the entrances to the pits are sufficiently roomy, well lighted, clean, and free from putrid deposits of oil-water emulsions, the attendants will not be tempted to shirk their responsibilities in keeping the lines well blown down. Underground receivers have the advantage of being reasonably free of freezing troubles, especially on the days when the intake air at the compressors is exceedingly moist.

Pressure relief devices are usually of sturdy construction and require

• A large riveted receiver being installed in an underground vault.

but a minimum of attention other than the daily manual tripping, once they have been accurately set for a predetermined pressure. These offer the best margin of safety the manufacturers have to offer the user; and in combination with automatic unloading devices which cut in at minimum low pressures and release at a predetermined maximum they are considered quite dependable when adjusted by experienced help. Both the pop-off valve and the unloading device can be checked for accuracy in operational functions by the use of a pressure gauge of known good quality. Since this gauge is important to the successful operation of the compressor, it should be checked against a standard at periodic intervals. Guessing has no place in a well-managed plant.

While lubrication is essentially a feature of the air compressor itself and not of the receiver proper, lubrication does have an important bearing on receiver operations. The reader will recall the mention of oil-water emulsions present in the receiver and the distribution lines. There is absolutely no economy in purchasing a cheap grade of oil from an unknown source when good oil is so much more economical to use in the long run. Oil is not always "oil" in spite of the brash promises of the slick salesman who knows little about his product but the commission a sale will bring him. Compressors, not unlike internal combustion engines, produce carbon as a byproduct of oil combustion occurring in the cylinders when they are heated through compression. Such carbon builds up on the ports and valves and, in combination with oil sludge, forms an insulating medium which prevents cooling water in the jackets or the air in the fins of air-cooled units from serving their cooling function. As the temperature rises, more carbon and sludge is created in ever increasing tempo. Last, but not least, the burned oil also produces carbon-monoxide which gets into the breathing zone of users of compressed air equipment and is most undesirable from a health point of view.

It was this self-same overheating that caused not only carbon-monoxide to form in the instance of the ruptured receiver but also live, glowing particles of free carbon. These were wafted into the receiver laden with heavy, hot oil vapors, and all the factors necessary to produce a major explosion were present. That was not long in coming, as all persons then within a mile-square area could witness.

All air receivers should be tested by qualified engineers, according to the American Society of Mechanical Engineers' specifications based on the Code for Unfired Pressure Vessels. Each unit should be supplied with a suitable card, under glass for weather-exposed units, bearing the name of the inspector and the date of his visit, plus a notation indicating the allowable working pressure.

The disastrous consequences of a receiver explosion are of such importance as to justify the use of the best engineering skill in laying out a compressed-air system and establishing a smoothly-functioning maintenance organization. Where the installation is small and does not warrant close attention by staff personnel, a service organization can be called in to check the layout at specified intervals and make any needed repairs.

Insurance, too, is an additional safeguard, especially if the insurance company engineers assume the inspection functions at regular intervals. They may be trusted not to overlook any hazard that may cost the policy holder or their employers large sums of money.

California Portland Cement Splits Stock on 10-to-1 Basis

Directors of the California Portland Cement Company, with the consent of 90 percent of outstanding shares, recently voted to change the par value of the capital stock to $10 from $100 and to split the stock on a ten-for-one basis.

At the same time a dividend of $4 per share was declared, which would be equivalent to 40 cents per share on the new stock, payable to stock of record October 18. The firm has been paying quarterly dividends of $1.80 per share and also paid special dividends of $20 in April and $5.80 last December.

Riddle Quarries Crane Makes Big Catch in Kansas Stream

Cranes (mechanical variety) are put to a wide variety of uses by their owners, but residents of Marion, Kan., witnessed one of the rarer tasks performed by one of the long-necked contrivances, owned by Riddle Quarries, Inc., when it went fishing in the South Cottonwood River recently.

The catch was a big transport trailer of the Goertz Oil Company which had jack-knifed as the brakes were applied, and plowed over a 25-ft. bank into the river.

Alpha Safety Helps Cited By Natl. Safety Council

From the *Foremen's Safety Exchange Sheet* of the Alpha Portland Cement Company, as quoted in the National Safety Council's *News Letter*, we in turn quote the following item, reporting two combination safety-housekeeping suggestions:

"Improvements in operating efficiency nearly always go hand in hand with safety. The Ironton plant has speeded up its boxcar cleaning technique by adopting the following ideas:

"An old, but usable car, picked up at a nominal sum, was converted at the plant into a special car-cleaning supplement. Extra wide and deep steel panels were built on the chassis to accommodate the trash and litter found in boxcars, which is transferred directly from car to truck. This method saves times and the double labor cost of using the plant truck and workers to clean up the litter from the ground, where it used to be dumped by the car cleaners.

"In addition to this method of cleaning boxcars, C. L. Stamper, baghouse foreman, constructed a 5-ft. ladder for car cleaners to use when entering the car. Attached to the side supports of the ladder are cleaning tools—steel claw bar, broom, hammer, and stapler—each in its own place, out of the working area, yet handy and ready for use during car cleaning operations."

Milwaukee to Have Plant For Processing Perlite Ore

In an announcement released by S. F. Bartlett at Milwaukee, Wis., it was revealed that a newly-organized concern, the Badger Perlite Company, will soon open its $100,000 plant for processing perlite ore. (Mr. Bartlett is president of Ready-Crete, Inc., of Milwaukee.)

Equipment for the perlite plant will be supplied by Muehleisen Perlite Process Inc., Fort Worth, Tex. It was stated that two men operating the machinery will be able to produce 60 bags of 4-cu. ft. size per hour.

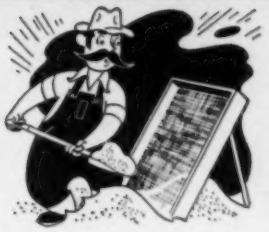
Asbestos Ore Scheduled To Take to Air in Arizona

According to the *Engineering and Mining Journal*, helicopter service from an asbestos mine site within the Grand Canyon in northern Arizona is now being operated by the Arizona Helicopter Service.

It is reported that the mine is patented land, staked out in 1903, and that this is the only point at which aircraft is authorized to land within the park grounds. At present the helicopter is used as a sight-seeing medium, but it is planned to carry ore out of the canyon within a year.

A presentation of the "legal ABC of prospecting and mining in Canada" in digest form is the new publication, *The Mining Laws of Canada*, recently issued by the Canadian Department of Mines and Technical Surveys.

Screenings



by William M. Avery

EVERY now and then we receive pleasant reminders of the far-reaching influence of your favorite journal. In August of last year, for example, we published an article describing a new super-fine grinding method developed for the Gouverneur Talc Company of Balmat, N. Y. Months later this (for us) routine reporting job touched off a full column story in *The Cleveland Press* under the by-line of James K. Chandler, Talcum Powder Editor. Recognizing Mr. Chandler as a kindred spirit in an all-too-serious and troubled world, we herewith reprint his mistreatment of the subject:

Our Talcum Powder Editor slapped a copy of PIT AND QUARRY Magazine on the City Desk and wagged an empty cellophane bag in the city editor's face.

"Look," he exclaimed triumphantly. "They've done it at last. Invisible Talcum Powder! Here's a sack full of it."

The city editor started to turn

away in disgust, being occupied with such news of the day as holes in the highways and holes in people's heads. But he has a nose for news. He can smell a story a mile away, and talcum powder two miles.

"What good is invisible talcum powder?" he demanded.

"Ogden Nash once said, 'a little talcum is always walcum,'" answered the Talcum Powder Editor, "but it says here they are using this in paint. Maybe they're going to get out a combined paint and powder for one-shot repairs on women's make-up.

"This stuff has particles 55 times smaller than can be seen by the human eye. The R. T. Vanderbilt Company found a machine for it and makes it at Gouverneur, N. Y.

"Talc ore is dug out of a 600-foot mine shaft sunk by the Underpinning & Foundation Company," the Talcum Powder Editor explained.

"Sounds like a garter and girdle firm," mused the city editor, digging through the pages of PIT AND QUARRY.

"Then this talc ore is sucked into a wind tunnel where hot air is coming in at 1,110 miles an hour," resumed the talc enthusiast. "It whangs around in there, bumping into other talcum and finally it gets into little particles you can't see. They are eight-tenths of a micron wide, and a micron is one twenty-five-thousandths of an inch.

"Then the little stuff is wafted out a side door in this gadget and there you have it—invisible talcum powder."

The Talcum Powder Editor went triumphantly back to his desk and sat down. The city editor sniffed the cellophane. He looked closely at it and found a hole in the bottom of the bag. He telephoned to the Vanderbilt Co.

"This new tiny talc is invisible only when you try to see one particle at a time," he was told. "You ought to be able to see a sackful. It must have leaked out in the mails. It is used in house paints and bathroom tile. Good-by."

Another Ambulant Stone

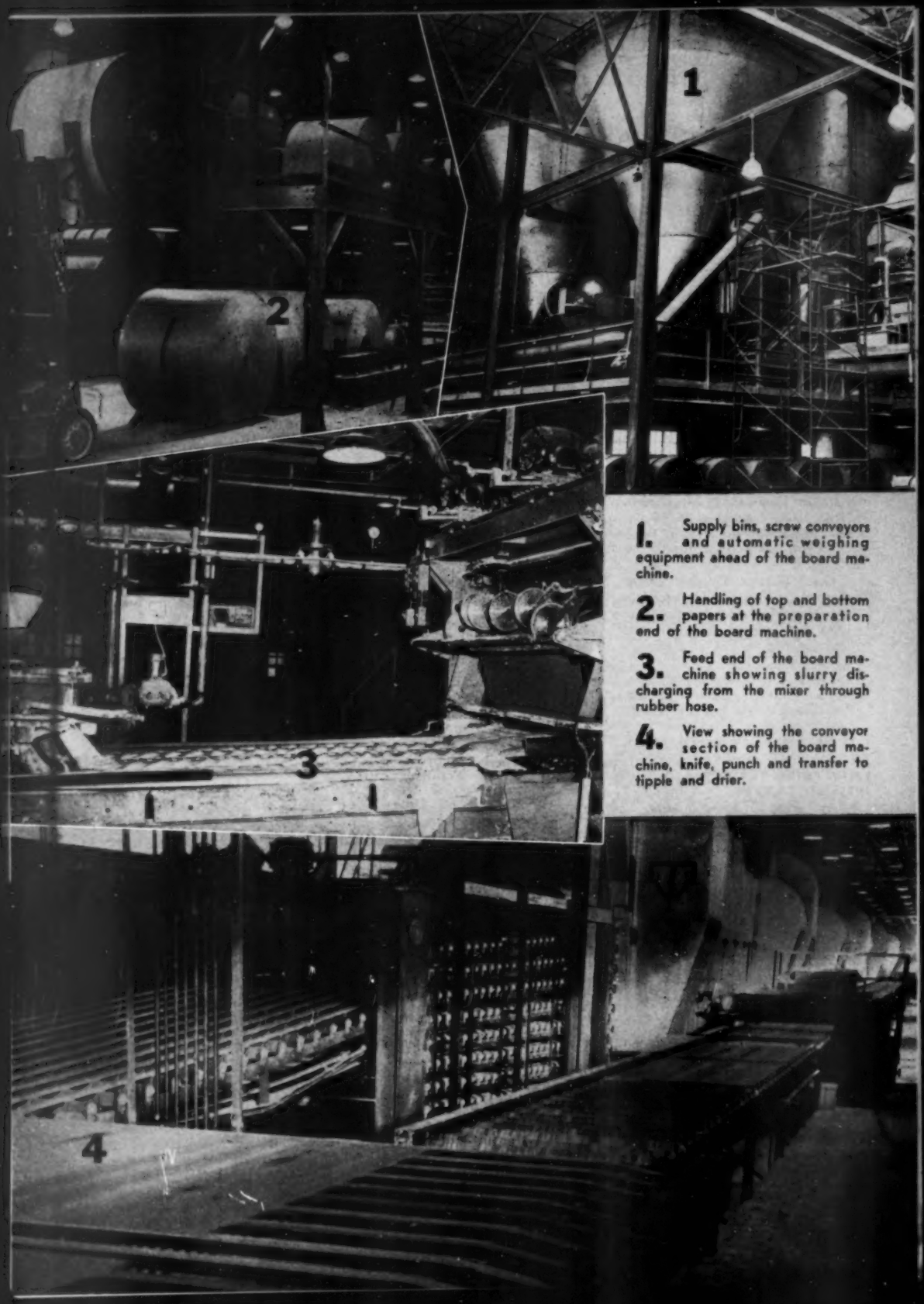
OUR series of reports on the transient habits of historical stones in general, and of British historical stones in particular, would hardly be complete without some reference to the recent theft of the 600-year-old Stone of Scone from Westminster Abbey. The stone, on which Scottish kings had been crowned since the Fifth Century, was removed to England by Edward I in 1297 to symbolize the English monarch's sovereignty over Scotland.

It is assumed that after brooding over the affront for 653 years, the Scots decided to take matters into their own hands and cart the "Stone of Destiny" back to Scotland. We

hope this is the case. When the news first reached us we had for just a moment a dark suspicion that some American insurance company, having adopted "As Permanent As the Stone of Scone" for its trademark, might have swiped the original to adorn the lobby of its home office in Keokuk, Ia.

For Insomniacs Only

A RECENT publication of the Bureau of Mines describes a number of uncommon minerals found in the Pacific Northwest, and after a gloomy perusal of the jawbreaking names we've decided they can damned well keep the stuff up there for all we care. The list includes (on your guard, Mr. Linotype Operator!): plumbojarosite, pyromorphite, pseudomalachite, manganophyllite, kotschubeite, glaucodet, geocronite, and boulangerite. Our book review editor has just advised us, between yawns, that the booklet is a sure-fire cure for insomnia.



1. Supply bins, screw conveyors and automatic weighing equipment ahead of the board machine.

2. Handling of top and bottom papers at the preparation end of the board machine.

3. Feed end of the board machine showing slurry discharging from the mixer through rubber hose.

4. View showing the conveyor section of the board machine, knife, punch and transfer to tipple and drier.

New board and lath plant latest in series of improvements

Certain-Teed Products

By WALTER E. TRAUFFER

another ON THE SPOT report

THE Certain-teed Products Corporation, one of this country's largest producers of gypsum products, in 1950 made substantial additions to several of its operations which considerably increased its capacity to produce badly-needed gypsum board, lath, plaster, etc. The most important program was at its Fort Dodge, Ia., plant where the gypsum plaster mill was enlarged and improved, a completely new board and lath plant was built, and other departments were expanded and improved. This program was intended primarily to increase the production of wallboard, and expansions in other departments were necessary to make this possible. Plans for these improvements were begun late in 1946 after conversion from underground mining to open quarry operation. Actual construction was begun in October, 1949, and the new departments were in full operation on October 15, 1950.

The quarry is operated one 9-hour shift daily; the mill and board plant, three 8-hour shifts; the plaster packing facilities, two 8-hour shifts; and the block plant, one 8-hour shift.

The new departments have many advantages over the old in addition to the latest types of new equipment. In the old plant the rolls of paper were handled by an overhead crane; lift trucks now do the job more quickly, economically, and safely. This plant is also said to be the first in which board plant ingredients have been successfully weighed in a continuous process.

The new board machine and drier are of the latest design, as is also the building housing them. This provides ample storage space for paper and finished products. It also provides for under-roof loading and unloading of railroad cars and trucks.

Practically nothing remains of the original 3-kettle plant and equipment which was built by the Iowa Hardwall Company at this location in 1908. In 1912 the American Cement Plaster Company bought the plant and added a block department, which was all that survived a fire in 1913. The mill was rebuilt in 1914, an all-steel 4-kettle plant with individual electric motor drives, an innovation in those days. The Beaver Products Corporation took over in 1920 and in 1924 built a board plant with a 4-deck 270-ft. drier. In 1928 Certain-teed took over the property and made many improvements at once and through the years. The most important of these were a new block machine installed in 1929 and the extension of the drier to 450 ft. in 1941, increasing its capacity 25 percent.

When Certain-teed acquired this property in 1928, the gypsum was being mined underground. Mining conditions were unsatisfactory, however, and the mine was abandoned in August, 1945. There was no cap rock or floor rock, so about 50 percent of the gypsum had to be left for floor, roof, and pillars. Underground mining also required more labor than open quarrying, even with the

most efficient equipment. These disadvantages outweighed the fact that heavy overburden would have to be removed in open quarrying. In October of 1945 a contract was let to the Peter Kiewit Sons Company to open a quarry, install crushing and conveying equipment, and deliver 500,000 tons of gypsum rock to the plant. The 23- to 26-ft. bed of gypsum has an average of 46 ft. of overburden and about 300,000 cu. yds. of that had to be moved before quarrying could begin. This was accomplished in 140 days, the first rock being delivered to the mill March 4, 1946. A 5-cu. yd. Bucyrus-Erie electric walking dragline with a 180-ft. boom removes the earth overburden and overcasts it into the worked-out section of the quarry. An Insley ½-cu. yd. dragline cleans up the surface of the deposit.

Drilling is done with a rig of original design consisting of a Fordson tractor mounting two wagon drills and a compressor. Blasting is done in the usual manner. A Northwest 2½-cu. yd. shovel loads the gypsum rock into two Euclid 11-cu. yd. dump trucks which haul 20-ton loads. These haul an average distance of less than ¼ mi. to the primary crushing station in the quarry. The product of the 30- by 42-in. jaw crusher is carried on a 36-in. by 550-ft. inclined belt conveyor out of the pit to a 200-ton truckloading bin at the rim of the quarry. Under this bin are loaded the Mach 22½-ton diesel trucks which haul to the plant. To load the trucks each driver pushes a button to open and close the air-operated discharge gate. As the trucks stand on the plantform of a 30-ton truck scale, the safe load can be accurately measured out; and this system also keeps a record of the amount of gypsum going into the plant. The distance to the plant is about 2.3 miles over a country road improved and maintained by the company.

At the plant the gypsum is dumped into a hopper from which a Jeffrey electric vibrating feeder discharges to a bucket elevator. A Jeffrey Flextooth hammermill reduces the rock to 1½-in. minus at the rate of 150 t.p.h. When raw rock is shipped out, it is screened before loading into cars. Otherwise the rock goes to a Jeffrey hammermill which reduces to ½-in. minus. Further grinding is done by two Raymond 5-roll high-side rollers or kiln mills, a No. 5057 which has been in use for some years, and a new No. 6058 machine (60-in. dia. 5-roll, 8-in. roll face). Both have gas-fired ovens which have also been equipped to burn fuel oil on short notice.

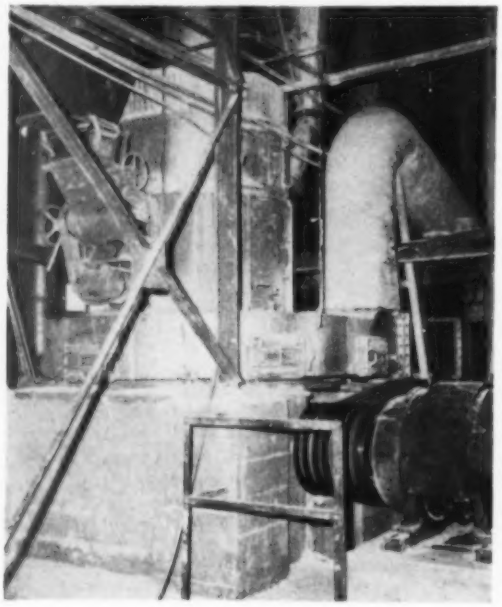
The pulverized and dried gypsum is conveyed from the mills to bins in the calcining department. There were four Ehrsam calcining kettles, and a new Ehrsam 10- by 12-ft. suspended type kettle was recently added. This has a capacity of 15 tons per batch. It is connected to an Ehrsam dust collector. A sixth kettle will be installed in 1951, according to present plans. From this department the calcined gypsum or stucco is supplied to the block plant, the plaster warehouse, and the board plant.

In the plaster department the stucco is fed with fibrous material, sand, retarder, etc., in accurate proportions for various plaster formulas into Ehrsam mixers. St. Regis packers bag the finished plaster.

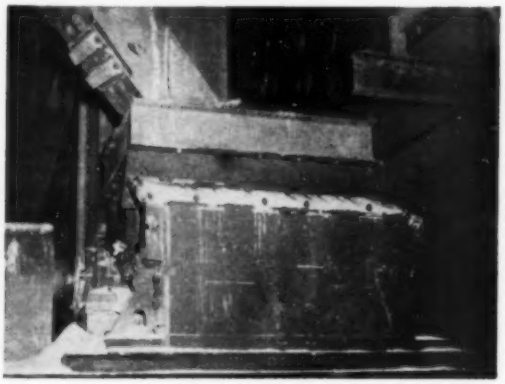
In the block plant the old mold car method of block making was replaced in 1929 by a Her-Born continuous block machine.

In the board plant a drag chain conveyor draws the complete dry mix from a constant-level surge bin to a Syntron constant-weight feeder and into an Ehrsam high-speed pin mixer. Water is added automatically into the mixer by an indicating and recording meter along with foam for weight reduction. This mixer takes the place of the primary and secondary mixers used in most other plants. The slurry is discharged from the mixer to the board machine through three rubber discharge hoses which are squeezed occasionally to break loose any cake formation.

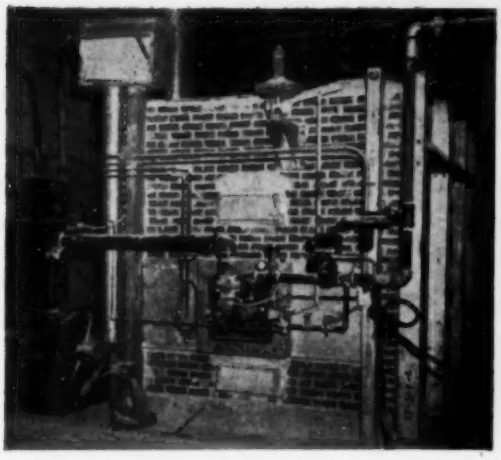
The Ehrsam board machine is complete with roll supports, paper tension devices, lath punch, cut-off knife, etc. It has three belt sections each 57 in. wide and 150 ft. long, and a roller section 300 ft. long. Electric heaters dry the paper ahead of the scoring device, after which the slurry is discharged on the paper. The paper forming device has a variable speed control which the operator can adjust as necessary for both layers of paper. The forming device has a safety feature in that the top roll is counterbalanced so that it will raise 4 in. if any foreign

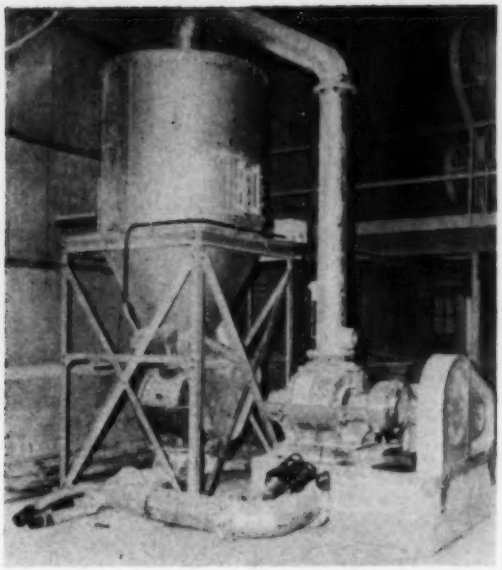


• Left: The new 5-roll high-side mill which grinds and dries the gypsum before it goes to the calciners.



• Below: The hammermill which reduces gypsum to 1½-in. minus before it goes to the grinding mills.





• The gas-fired oven of the new 5-roll mill. This oven is also equipped to burn fuel oil.

• Right: The air conveying system which unloads sawdust from railroad cars for the stucco bins.

object gets on the paper. A heavy spring shoots the roll up so rapidly that a man could put his hand under it without getting hurt.

At the end of the last roller section of the board machine is an Ehrsam low-type reciprocating punch for lath with a short belt conveyor to carry off the punchings. This is followed by the Ehrsam high-speed rotary cut-off knife. At the end of this last roller section, where it discharges on the transfer table, there is an inclined conveyor section to carry culls outside to waste.

The control of the entire board machine system is automatic to the greatest possible extent and provides for any contingency. All the machine bins are filled automatically, and the machine operator starts and stops all operations with a single pushbutton. There is a light signal panel for all belts. If slurry is being lost at either end, or if it is desired to retard the belts for some other reason, the operator can push a creep button which will slow the belts down to a speed of 25 f.p.m. for 5 seconds, after which they automatically resume their normal speed.

The entire board machine is driven through a Reliance Synchrolock drive which synchronizes the speeds of the various belt sections, the punch, and the knife. This is a d.-c. vari-volt drive with a motor-generator set supplying d.-c. current for the 75-hp. motor which drives the punch, the knife, and the final short roll section through an Allis-Chalmers Vari-Pitch variable-speed reducer. This motor is connected to a wound-rotor induction motor which drives the motors of the three belt sections and one live roll section in synchronism. Each of these four sections is driven by an individual 25-hp. motor through a D. O. James speed reducer, a Vari-Pitch reducer, and a chain.

The board kiln or drier in this plant is an 8-deck Coe machine with 9-ft. rolls and a 482-ft. enclosed section. It has 77 enclosed sections divided into five air zones. There are improved doors on each side of each section and these and the manifolds are sealed with stainless steel weather stripping. Three-inch asbestos insulation is used throughout. Natural gas is used as fuel. The temperature is controlled automatically by Wheelco instruments. This system prevents overheating by shutting off the gas in any zone when the temperature goes above the predetermined maximum. It is also impossible to turn on the gas unless the dampers are open. After the pilot lights are lit, the main burners can be lit only after 3 minutes have elapsed in order to prevent explosions from gas in the drier. Makeup air for the burners is drawn through filters by special fans. A 75-hp. fan on each zone circulates air in the drier, and there are vent stacks for the discharge of saturated air.

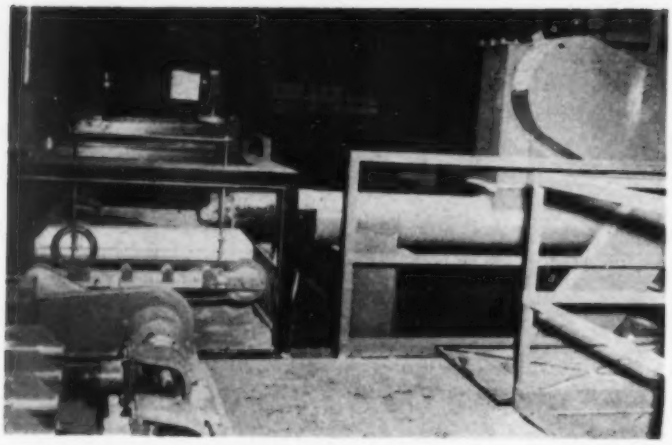
The Coe drier equipment begins with a takeaway section from the board machine and a 22-ft. transfer, the biggest ever built. These are both automatic, as is also the electric-eye controlled tipple which feeds in turn to the eight levels at the feed or intake end of the drier.

The drier is 9 ft. wide inside and will take two 4-ft. boards across. There are nearly 4,000 rolls on the eight levels, and these are all driven by a 25-hp., 1200-r.p.m. motor through a Reeves variable-speed reducer, a Coe gear box, and roller chains between the rolls.

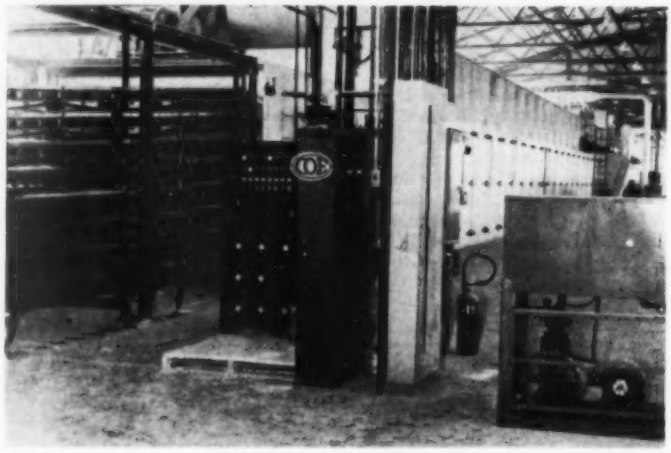
The 20-ft. sections of lath pass straight on off the transfer conveyor to the lath breaker, which breaks them into 4-ft. by 16-in. sections. The lath are then transferred automatically to the lath bundler and then to the stacker, which stacks them first in one direction and then at 90 degrees for a firm stack.

The bundles of board are loaded on steel skids and are handled by platform trucks. The lath are loaded on pallets and handled by fork lift trucks, the pallets having their sides built up so that the forks go under the bundle and no rehandling is necessary in storage or in cars.

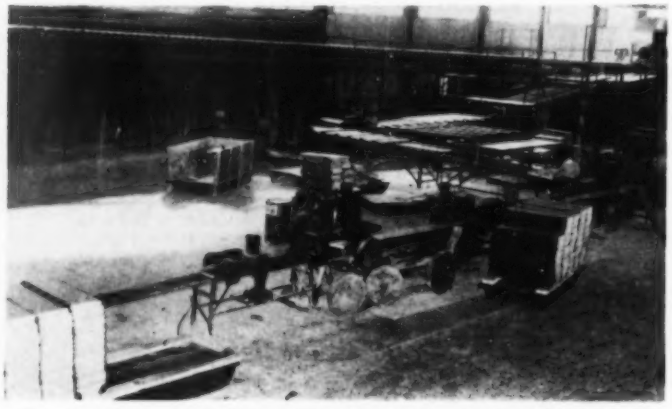
The new board building is 1,070 ft. long and 110 ft. wide for most of its length. At the drier end it is 40 ft. wide for a distance of 390 ft. and at the opposite or incoming end it has a section 192 ft. wide connected by a 20 ft. extention to the old building. The building has a 12-in. concrete floor and a steel framework, with walls of 1-in. gypsum plank and corrugated steel siding outside. The poured-in-place gypsum roof is supported on Macomber steel roof



• The automatic weighing equipment which blends stucco, sawdust, adhesive, etc., ahead of the board machine.



• A view at the takeoff end of the drier, showing the final 8-level conveyor section and the control board.



• A view of the board- and lath-handling and packing department, with lath being run.

trusses which are clear span in the 110- and 40-ft. wide sections. In the drier section there are 36-in. ventilators every 20 ft. and every 40 ft. elsewhere. There are no windows in the drier section, but 4-ft. high Plexiglass is used elsewhere.

Inside the wide end of the building there is a truck-loading dock where four big semi-trailers can be loaded at one time. The siding from the Illinois Central Ry. also runs inside the building for all-weather loading. The Fort Dodge, Des Moines and Southern Ry., an electric line, serves the old plant and both make good connections for shipments in all directions. The entire building is heated by Dravo unit heaters.

The Turner Construction Company, New York, was the general contractor for the new board building, which was designed by Certain-teed's architect, J. C. Van Balen. The manufacturers supplying new equipment cooperated with the Certain-teed engineering and operating staff in designing all the new work. Outside help was used in all erection and installation work.

The electrical system at this plant is also of interest. Power is purchased from the electric railway which serves the plant. The 25-cycle current is used in the older sections of the plant, but the new board mill is equipped with 60-cycle motors. In order to meet this requirement the railroad installed converters and transformers to change the 22,000-v., 25-cycle current to 6,900-v., 60-cycle.

The water requirements of this plant are over 75,000 gals. daily and in anticipation of this and future requirements a 2060-ft. well was sunk in 1949. This was pumped at a rate of 675 g.p.m. for 24 hrs., without lowering the water level. A 100,000-gal. elevated storage tank, a better fire protection system, and other related facilities are being installed. A new sanitary system already completed would serve a town of 500 inhabitants.

The Certain-teed Products Corporation has its main office at Ardmore, Pa., a suburb of Philadelphia. It operates seven gypsum mines and plants at Fort Dodge, Ia.; Blue Rapids, Kans.; Grand Rapids, Mich.; Akron, N. Y.; Acme, Tex.; and (Western Gypsum Co.) at Sigurd, Utah. The company also operates several roofing plants, a fiberboard and acoustical tile plant, and a fiberboard and paper plant.

Officers of the corporation are: Rawson G. Lizars, chairman of the

(Continued on page 77)

Slag Production

Houston firm processes material from Sheffield Steel's 700-ton furnace

another ON THE SPOT report

ON a field trip through the state of Texas some months ago we visited the slag processing plant which the Houston Slag Materials Company operates under contract with the Sheffield Steel Corporation. The blast furnace at this operation of Sheffield commenced production in

By WILLIAM M. AVERY

early 1944 and has operated since that time except for closing down for a period after the end of World War II. The slag plant began its operations during the first half of 1945.

The plant has a rated capacity of 70 t.p.h., but average output actually runs somewhat higher than that figure. Its distinguishing feature is the Kern radial storage system which provides for 600 tons of live storage capacity and up to 50,000 tons reclaimable by the simple expedient of reversing the slack line which is used for stockpiling the processed materials. The system will be described in greater detail at the appropriate point in the following description of the plant.

Rough slag is recovered from two parallel pits adjacent to the plant, each being divided into two sections by a common access roadway. The material is dug and loaded into two conventional end-dump LJ Mack trucks with a 2½-cu. yd. Marion diesel shovel. When the shovel is operating fairly close to the plant, one truck is adequate for feeding, but in the more distant sections of the pits the common practice is to employ two haulage units.

The slag is dumped from a ramp into a steel hopper mounted over an apron feeder which discharges the material onto a 30-in. by 63-ft. inclined belt conveyor. The latter delivers the flow to a 3½- by 8-ft. double-deck Symons vibrating screen. Oversize (plus 2½-in.) slag drops directly into a Telsmith 10-B 4-ft. gyratory crusher, while the intermediate product (minus 2½-in. plus 1½-in.) goes to a 25-cu. yd. surge bin from which a Symons 2-ft. standard cone crusher is fed. The material which passes through the bottom deck of the screen bypasses both crushers, rejoining the two streams of crushed slag on the 24-in. by 157-ft. inclined belt conveyor which feeds the Kern tower.

• This general view of the plant operated by Houston Slag Materials Company shows the truck loading tower at the far left, the rail loading station (center), and the storage tower (right). The end of the crane boom and the scraper used for storing and reclaiming are visible at the far right.

Final sizing is done with a single vibrating screen at the top of the tower. This 3½- by 16-ft. Symons screen is divided at the center, forming an 8-ft. long double-deck section on the front half, and an 8-ft. long triple-deck section on the backhalf. The six sizes of material which drop from the screen are plus 3-in., 3- by 2-in., 2- by 1-in., 1- by ⅜-in., ⅜- by ¼-in., and minus ¼-in.

• Loading at the slag pits is done with a 2½-cu. yd. diesel shovel. Sheffield Steel Corporation's 700-ton blast furnace looms above the shovel cab.

The various sizes of slag drop by gravity into six ground-storage compartments formed by a like number of radial concrete partitions which support the tower. Live storage from these compartments is reclaimed through gates which discharge from each pocket onto a single tunnel conveyor. At the time the plant was constructed the entire area around the tower was excavated to a distance of 150 ft. from the center to provide the tremendous reserve storage capacity now available.

Slag is stored in this excavated area by means of a 1-cu. yd. Sauerman slack line drag bucket, the head pulley operating on a circular I-beam track which is attached to the base of the tower. In most installations of the Kern storage system the drag scraper is operated from a self-propelled travelling hoist tower which runs on rails encircling the limits of the storage area. At Houston Slag's plant, however, the hoist unit is a Model 70 Buckeye Clipper crawler crane with a 35-ft. boom. This unit operates on a 20-ft. roadway which encircles the tower, with the boom normally held in an almost horizontal position. As the crane shifts position on the roadway the head pulley automatically

circles the I-beam track to remain radial with the crane sheave.

The only change required in order to reclaim slag from the storage area is the reversal of the Sauerman scraper bucket. This simple, quickly-made adjustment enables the scraper to transfer material from the dead storage space to the live storage pockets, so that the only practical limit on the loading capacity of the plant is the amount of material that can be handled on the reclaiming belt. Thus, during periods of peak demand, the plant can readily load and ship out at a rate three or four times greater than its productive capacity. The company frequently uses the Buckeye crane for loading trucks. A shovel attachment is available for this purpose.

The tunnel for the reclaiming conveyor is located under one of the six partitions which separate the live storage pockets. Emerging from below ground level near the end of the wall, it does not interfere at all with live storage capacity. Individual sizes, or any desired blend of sizes, can be placed on the conveyor belt by properly adjusting the appropriate control gates in the roof of the tunnel.

The 24-in. by 162-ft. conveyor inclines upward to a loading tower located adjacent to a railroad siding. Here the slag may be discharged directly into open-top cars, or placed on a short length of belt conveyor which delivers it to a nearby truck-loading tower. From the top of the latter tower a swivel spout directs the flow of material into any one of the four 25-ton steel bins from which trucks are loaded. The provision of separate stations for loading railroad cars and trucks permits the two operations to be carried on simultaneously without too much interference. Average time for loading railroad cars, which account for about 70 percent of total shipments, is 30 minutes.

Houston Slag's entire operation, including loading at the pits, is carried on with a crew of only 11 men. The output of the plant goes almost entirely into road base construction. The material is said to be exceptionally well suited for base construction in the black gumbo soil which prevails throughout the Houston area.

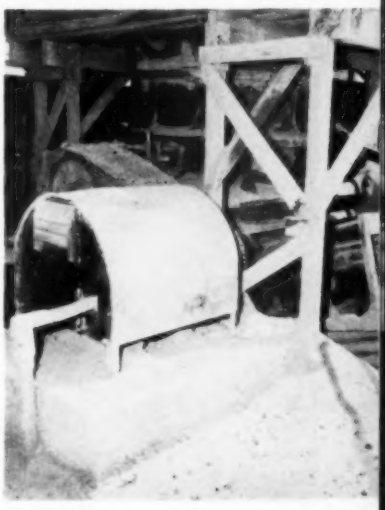
The company is owned by George A. Mattison Jr. of Birmingham, Ala., and Roy Hofheinz of Houston. George W. Lanier is general manager of the Houston concern, and Charles A. Caddell is plant foreman.

• A view from the top of the storage tower shows the arrangement of belt conveyors and the loading towers for truck and rail shipments.

• The crawler crane which serves as a traveling hoist for operating the scraper. The low area to the right is a part of the 50,000-ton storage space.

• Left: Six sizes of material are separated on this 3½- by 16-ft. vibrating screen. It is divided into two 8-ft sections, has three decks at the feed end, and two at the discharge end.

• Right: Plus 2½-in. slag is crushed in this 4-ft. gyratory crusher, then drops on the belt conveyor which feeds the storage tower.



Report on Current Labor Developments

Manpower Problems Ahead

By S. HERBERT UNTERBERGER
Director of Research
Labor Relations Information Bureau
Washington, D. C.

ANOTHER ON THE SPOT REPORT

AT the moment, wage controls and price controls are occupying the center of the stage. The crisis of inflation appears to be upon us, but it is not too soon to look forward to the next crisis. It is likely to be a manpower crisis. Here are the dimensions of the problem.

At present, almost 65 million persons are at work. By July, 1951, we will need to have 68 million persons at work. This results from the fact that there is always some expansion of employment in the summer because additional workers are required on the farms. In addition this year the increased defense orders will really begin to take effect about this time.

During this same period, however, as many as half a million men may be drawn off for the armed forces.

Where will the additional three million workers be found? Theoretically, it is possible to answer this question. There are more than three million workers available among the unemployed, among housewives, older workers, and youths leaving school. Unfortunately, there is a great deal of difference between an available worker and a worker in a job, and there are many difficulties in the way of bringing the worker and the job together.

It would appear that the easiest thing to do would be to put the unemployed workers back to work. As a matter of fact, within the next couple of months there will be an increase in the number of unemployed workers. This is because many workers will be laid off during the period when plants change over from civilian to defense production.

Nevertheless, getting the unemployed workers transferred to defense production will be a difficult and complicated job. The principal problems will arise if they have to change employers. Workers, even after they are unemployed, are likely to be very reluctant to make the change. They may be unwilling to give up their seniority rights with an established business in order to take a job with a "war baby". In World War II an attempt was made to preserve workers' seniority rights during transfers to war work. This was not wholly successful. In those places where it did work, the transfer was strictly temporary. Now the character of defense jobs is far less temporary. It is almost impossible to preserve the seniority rights of workers who may be away from their regular jobs for a period which may stretch into years. Also, it might be quite unwise to try this because it would be creating some very serious problems of readjustment later on.

Second, many workers in recent years secured pension and other security benefits which they would probably lose if they changed employers. So long as they continue to get their unemployment insurance, and perhaps longer, many workers will prefer to wait for their previous employers to call them back. It has been suggested in several quarters that it may be necessary for the government to work out some system for transferring pension credits. Social Security credits, of course, go with the worker. Pension credits, however, exist only in private pension plans. To transfer them could become a very complicated matter. Trying to do this might force the government into the position where it will be required to subsidize or take over those plans. This would mean the end of the whole private pension structure built up over many years.

These problems will occur even where the worker may be required only to move from one job to another in his own locality. It will be remembered that in World War II it was often necessary for workers to move long distances to take war work. For example, large numbers of workers moved from the South to Detroit, and many workers moved from all over the country to the aircraft plants on the West Coast.

To get workers to move again may be next to impossible. Many of them remember the hardships they endured during the last war. When workers came to their new unfamiliar communities, many of them found that they were unwelcome, that there was no place for them to live, and that they were exploited unmercifully. Furthermore, since the end of the last war, most American families have tried hard to achieve a measure of stability and security. Often this drive was expressed in the form of buying a house. The Federal Government contributed to this trend by facilitating the purchase of homes by making credit available on reasonable terms. It is much harder to move a worker who owns his own home. Even though he might get a good price for his house, he will not want to give it up because a part of his profit will be taxed away, and he is unlikely to be able to buy a similar house in a new community with the money he has left. This difficulty was aggravated recently when the government tightened up its credit restrictions. A man may be selling a house with a very advantageous mortgage; but when he buys a new house, a much larger down payment may be required and the mortgage terms may be much worse.

Here again it has been suggested that the government reimburse a worker for his losses and that it provide housing at the new location. Precedents in the railroad industry have been pointed to in support of the former position. In that industry, and in other transportation industries as well, when a worker is transferred at the request of the company, all moving expenses and all losses associated with moving his household (including losses on his home or his lease) are borne by the company. If workers are to be attracted to new localities, it will be essential to provide them with acceptable housing.

Even if all these difficulties are overcome, there will still be the problem of shortages in some occupations where there is an insufficient number of trained workers and the problem of surpluses in other occupations.

Since it is so very difficult to move the worker to the job, it will be necessary to give a great deal of attention to moving the job to the worker. So far, little work has been done on this subject. But, it is obvious that the best way to avoid the problems set forth above is to see to it, in so far as possible, that workers are engaged in defense work on their present jobs, or at least with their present employers. This will require a great deal of ingenuity in the placement of defense contracts and sub-contracts. To avoid the necessity for large manpower transfers it will be essential that medium-sized and small firms be brought into the defense program.

Finally, putting every recently employed worker back to work will not

(Continued on page 77)

A World-Wide Review of the Portland Cement Industry

Part III—The Cement Industry In Japan

By MITSUZO FUJII
President
Japan Cement Engineering Assn.

DURING the last five years following the end of World War II, there were chaotic conditions in the Japanese cement industry. Production and distribution for domestic use and export, as well as the allocation of fuels, electric power, and supplies, were controlled by the Ministry of Commerce and Industry, while the price of cement was fixed by the Economic Stabilization Board and periodically revised in accordance with its price policy. Among the many difficulties was a critical dearth of good coal under the rationing system. The increased cost of materials was a serious impediment to production and hampered development heavily. But now the conditions have changed drastically, and the situation of the industry has developed favorably in recent months. In August, 1949, the coal rationing system ended, and in January, 1950, price control was discontinued. Consequently, there was a revival of the cement industry, both in the increase of production and volume of sales. Improvement of the cement quality has also been actively promoted. The improved business outlook resulted in optimistic predictions by the producers for the year 1950, in which it is now certain that production will establish a new post-war high. Consumption for domestic and export trade since the war has shown a steady increase each year over the previous one. Table I shows the annual capacity and production for the years 1939-1949 inclusive. Other statistical data appear in Tables II, III, and IV on the following page.

Table I. Number, Capacity, and Production of Portland Cement Plants, 1939-1949

Year	Plants	Estimated Capacity (Metric Tons)	Production	
			Portland Cement (Metric Tons)	Others* (Metric Tons)
1939	46	10,622,280	5,299,870	899,854
1940	40	7,071,600	4,405,232	1,669,311
1941	39	6,986,400	4,546,079	1,292,131
1942	38	6,598,800	3,173,807	1,182,216
1943	34	5,090,400	2,179,719	1,587,947
1944	36	3,708,000	1,925,799	1,034,351
1945	37	3,320,400	881,917	293,997
1946	36	4,363,600	742,912	184,228
1947	36	4,711,200	1,043,249	189,021
1948	35	4,764,000	1,623,188	319,469
1949	34	5,282,400	2,874,813	396,391
1950		7,000,000	4,200,000	

*Portland-blast furnace and portland-puzzolan cements inclusive.

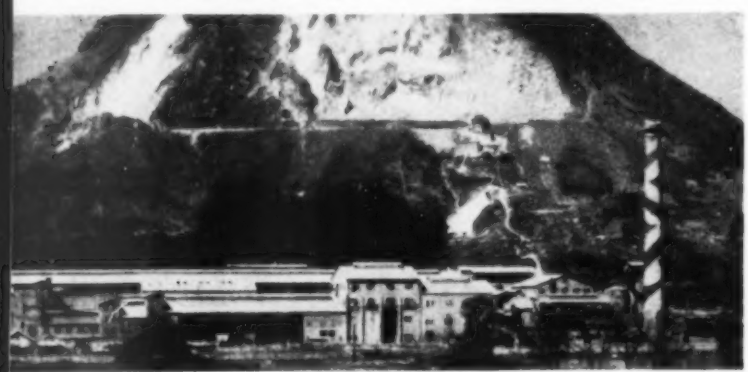
Capacity in 1943-1945 was seriously affected by the removal of plants during the war, by the serious shortages of equipment and supplies for the repair of worn-out machinery operated without the necessary spare parts, and also by the shortage of electric power, transportation, and skilled labor. In 1949 the total production rose to 3,271,204 tons, exceeding the government's target-figure of 2,800,000 tons. The anticipated production figures for 1950 are 3,600,000 tons for domestic use and 600,000 tons for export trade.

The following gives a brief review of Japanese cement industry in recent date:

Expansion—Fortunately the cement plants were not severely damaged by military action. It was estimated that about 8 percent of the production capacity was affected, and since then, the necessary repairs have been vigorously promoted in spite of shortages and high cost of materials, spare parts, and replacements. Now the condition of the plants in general is as good as in pre-war years, except for a few idle kilns, mills, and quarry equipment. Heat consumption for burning and power consumption for finished portland cement may be roughly estimated as follows:

Dry kiln (with waste-heat boiler) ..... 1600-2000 cal./kg. clinker
Wet kiln (with waste-heat boiler) ..... 1700-2100 cal./kg. clinker
Lepol kiln ..... 1100 cal./kg. clinker
Calorific power of coal ..... 5800-6800 (average, 6300)
Power generation, dry ..... 120-130 kw.-h./t. clinker
Power generation, wet ..... 110-120 kw.-h./t. clinker
Electric power purchased ..... 20-30 kw.-h./t. clinker

• The Kawara wet plant of the Japan Cement Co., annual capacity, 238,800 metric tons.



Projects for the modernization of machinery and equipment for increased efficiency, and the development of instrumentation have been a little delayed. The principal changes in progress are increasing capacity without major re-building, which would be a rather costly procedure. Even under such circumstances, some of the expansion programs are now proceeding as follows:

Conversion of the Japan Cement Company's old dry plant to a new wet plant at Kamiiso, Hokkaido (North Japan), involved the addition of one remodeled kiln, with the attendant enlargement of the raw mill (2.4 by 12 meters) and equipment required for increasing monthly production 7,000 tons. Construction began in the fall of 1949 and was completed in June, 1950. Currently under way as additional elements in the enlargement are a distributing plant with the installation of a modern boat-unloading system at Yokohama, to which bulk cement will be carried by vessels from the company's works in Kyusha (West Japan), where several competing cement mills are crowded too closely in a restricted marketing area.

Onoda Cement Company's expansion program, which will increase the monthly production by 10,000 tons in the Ofunato plant (Iwate-Ken) by the remodeling of one old kiln and the installation of an additional waste-heat boiler, was announced last year and was completed in July, 1950.

Another new building program at the Fujiwara plant (Miye-Ken) for increased production of 10,000 tons monthly, including the installation of one new wet kiln (2.4 by 3.0 by 70 meters), together with a grinding mill (2.4 by 14 meters), a waste-heat boiler (heating area 1,600 sq. meters) and other necessary equipment was scheduled to go into production in December, 1950.

Ube Cement Company reports the erection of a new plant alongside the old plant at Ube (Yamaguchi-Ken), involving one wet kiln (3.6 by 82 meters), a waste-heat boiler (heating area, 1,200 sq. meters), and all other equipment. An increased monthly production of 13,000 tons was expected to begin in September, 1950.

Beside these, some modernization work on a small scale is being done in all plants with the objective of increased capacity in order to hold down the higher operating costs and to meet the revived condition of competitive bidding and selling, both domestic and foreign.

Quality—In the Japanese cement specifications, four types of cement, namely normal portland, high-early-strength portland, portland blast furnace, and portland puzzolan cements are listed; and plastic mortar prism tests are adopted for compres-

Table II. Portland Cement Manufacturing Capacity and Production, 1947-1949, by Producing Districts

Districts	1947		1948		1949	
	Capacity (Metric Tons)	Production (Metric Tons)	Capacity (Metric Tons)	Production (Metric Tons)	Capacity (Metric Tons)	Production (Metric Tons)
Hokkaido	189,600	74,650	136,800	92,442	125,600	72,865
Tohoku	369,600	122,195	361,200	199,398	463,200	331,026
Kanto	892,800	290,302	871,200	390,355	1,016,400	656,562
Tokai	266,400	99,585	276,000	118,840	358,000	257,650
Kinki	736,800	138,179	730,800	258,274	840,000	508,869
Chugoku	788,400	196,949	806,400	283,419	876,000	602,682
Shikoku	104,400	24,499	117,600	40,604	114,000	54,410
Kyushu	1,363,200	285,911	1,464,000	459,316	1,490,400	787,140
Total	4,711,200	1,232,270	4,764,000	1,842,657	5,282,400	3,271,204
Portland Cement		1,043,249		1,523,188		2,874,813
Other Cements		189,021		319,469		396,391

Table III. Monthly Production of Portland Cement, 1949 (Inclusive of Other Types of Cements)

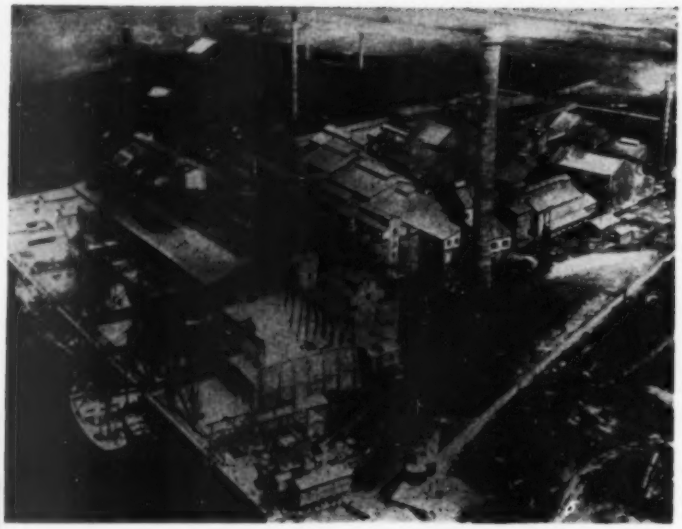
	(Metric Tons		(Metric Tons)
January	187,067	July	287,284
February	194,479	August	285,671
March	240,347	September	313,882
April	253,493	October	324,339
May	250,536	November	321,339
June	252,996	December	339,400
		Total	3,271,204

Table IV. Portland Cement Manufacturing Capacity of Cement Companies, 1947-1949. (Metric Tons)

Company	1947	1948	1949
Iwaki Cement Co	468,000	460,800	727,200
Nihon Cement Co	1,312,800	1,299,600	1,227,600
Hokoku Cement Co	148,800	159,600	162,000
Toyo Cement Co	129,600	129,600	126,000
Tokuyama Cement Co	116,400	121,200	193,200
Chichibu Cement Co	360,000	362,400	387,600
Onoda Cement Co	945,600	963,600	994,800
Yogyo Cement Co	448,800	434,400	484,800
Daiichi Cement Co	99,600	111,600	132,000
Tsuruga Cement Co	82,800	84,000	135,600
Ube Cement Co	307,200	342,000	330,000
Nozawa Cement Co	39,600	61,200	64,800
Yawata Cement Co	67,200	61,200	60,000
Sangyo Cement Co	62,400	69,600	146,400
Mitsui Cement Co	16,800	15,600	.....
Hitachi Cement Co	105,600	87,600	110,400
Total	4,711,200	4,764,000	5,282,400

Table V. Properties of Normale and High-Early-Strength Portland Cement

Properties	Type I (Normal Portland Cement)		Type III (High-Early-Strength Portland Cement)
	1948	1949	1949
Fineness, percent pass No. 170 sieve	2.9	2.9	1.7
Soundness (pats boiled)	good	good	good
Time of set, initial hr. and min	1:45	1:51	1:35
Time of final hr. and min	3:4	3:8	2:55
Compressive strength of standard 1:2.75 cube, p.s.i. (Federal Specification SS-C-192):			
7-day			1603
2-day			2948
3-day	1918	1962	4007
7-day	3032	3174	5349
28-day	4944	5156	6505
Chemical Analysis			
SiO_2	22.23	21.79	20.96
Al_2O_3	5.91	5.95	5.38
Fe_2O_3	3.41	3.44	3.05
CaO	60.25	63.35	65.56
MgO	1.50	1.45	0.87
SO_3	1.34	1.38	1.64
Loss on ignition	1.18	1.07	0.92
Insoluble residue	0.80	0.62	0.71
Total	99.62	99.05	99.09

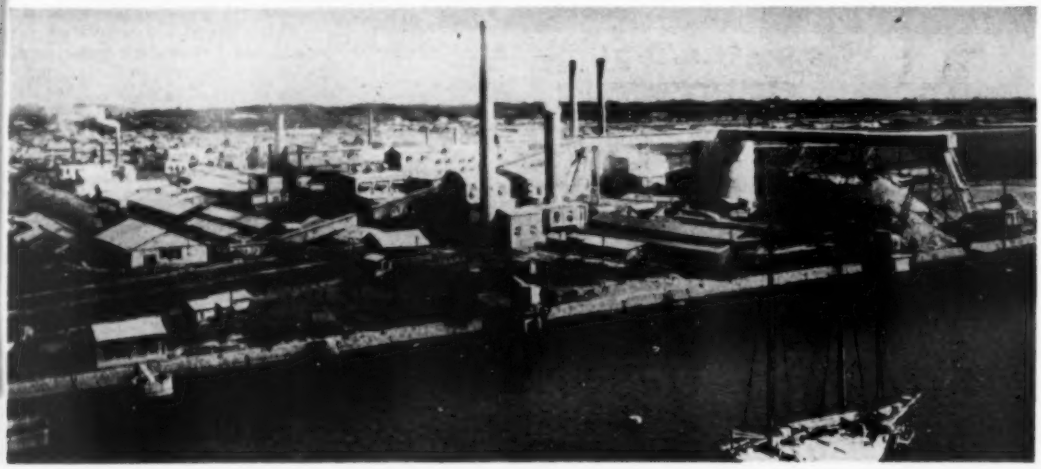


• A view of the Osaka water-front wet-process plant of the Japan Cement Co., which has an annual capacity of 154,000 metric tons.

sive and bending strength. The conditions during and after the war, especially the rationing system of very low-grade coal for burning and the insufficient electric power, were hardly favorable to the production of cement of pre-war quality. But since the lifting of restrictions on good coal and other materials in the last year, the quality again rose to the high level of pre-war time, as may be seen in Table V for 1948 and 1949.

Producers are now confronted with a growing demand for moderate-heat portland cement (Federal Specifications SS-C-192, Type II), with the addition of an air-entraining agent at the mixer, which is likely to be specified for big dam projects for power generation; and now good-quality cement in higher strength and lower heat-of-hydration are being marketed.

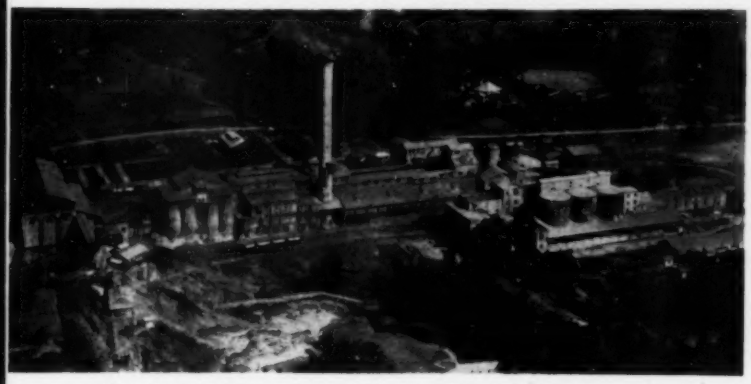
The future—Cost reduction and



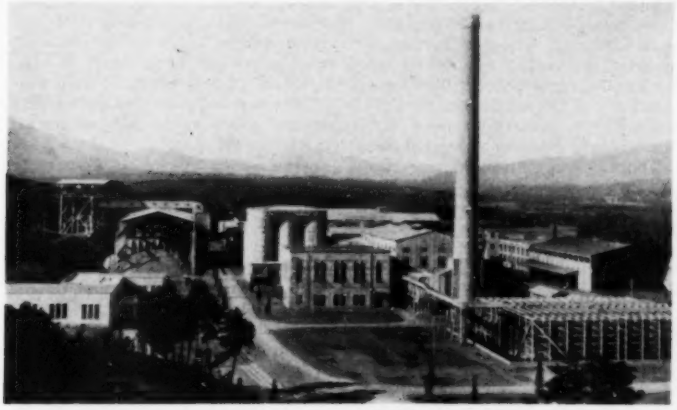
• Another water-side installation is the dry-process plant of the Onoda Cement Co., annual capacity, 164,400 metric tons.

• The Ofunato dry-process plant of the Onoda Cement Co., annual capacity, 111,600 metric tons. Note the quarry above and behind the plant.

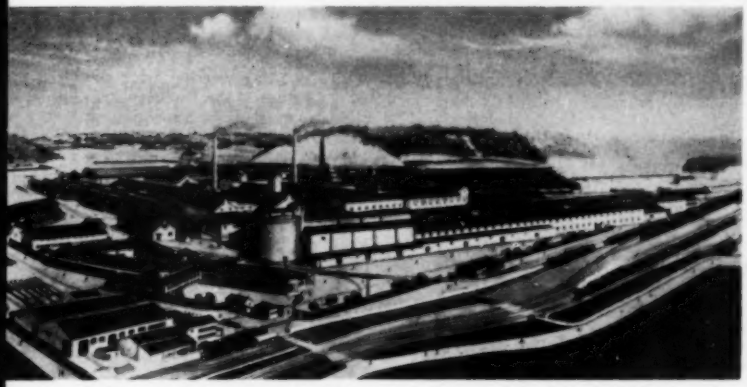
products of better quality are necessary in order to sell in competitive areas, and now Japanese cement manufacturers are doing their utmost to keep their plants operating at a high rate of production under new cost-saving ideas. Moreover, cement research work, both scientific and technical, is now developing actively and will obtain recognition among foreign investigators. As the result of such efforts, further development in the Japanese cement industry may be expected in the near future.



• The Nishitama wet-process plant of the Japan Cement Co. has an annual capacity of 164,400 metric tons.



• An annual capacity of 171,600 metric tons is claimed for the Fujiwara wet-process plant of the Onoda Cement Co.



• The Yotsukura dry-process plant of the Iwaki Cement Company has a yearly output of 112,800 metric tons.

Certain-teed Products

(*From page 70*)

board and president; John V. Lizars, vice-president in charge of engineering; C. K. Hobson, vice-president; Paul E. Fischer, vice-president in charge of manufacturing; Arthur O. Graves, secretary; Mellor Hargreaves, assistant secretary and treasurer. A. R. Craven is assistant vice-president; O. F. Grieve is assistant to the vice-president in charge of manufacturing. J. R. Johnston is comptroller; M. Meyer is general sales manager; H. C. Puckett is general mine superintendent; W. G. Will is chief engineer; G. A. Hoggatt is chief chemist, gypsum division.

Working on the improvement program at Fort Dodge were R. J. Taylor, project engineer and H. C. Johnson, electrical engineer. E. L. Flinn is plant manager at Fort Dodge. Bill Schmucker was installation engineer for the Coe Manufacturing Co. The Ehrsam & Sons Mfg. Co. was represented by C. Rosenlief, installation engineer, and Jim Brown, job engineer.

Labor Developments

(*From page 73*)

supply the three million additional workers that will be required. The largest potential source is the re-employment of women.

This solution, too, is full of difficulties. The high birth rate in recent years means that many housewives are very busy taking care of small children. Here, too, a government program for child day-care centers has been proposed. Such centers were operated on a moderate scale during World War II. They were generally regarded as successful. One day-care supervisor can frequently relieve a dozen or more housewives for production work. But even day-care centers may not make many women available particularly if they do not actually need to earn the money.

Older workers too might be used, except that there are not very many idle older workers around. A few more might be made available if they could continue to get their Social Security benefits while working full time.

The problem is that the additional three million workers may not be forthcoming. If that happens, the manpower crisis will be upon us.

Employers who wish to preserve their labor force in the face of a substantial manpower shortage would do well to review their own situation in terms of the attractiveness of the jobs they offer.

WASHINGTON NEWS LETTER

THE appointment of Charles E. Wilson, former head of the General Electric Company as director of the Office of Defense Mobilization has set the tone for the Washington atmosphere these days. Mr. Wilson is a successful industrialist with a long record of achievement. He is no newcomer to the Washington scene, having served his apprenticeship in a top capacity with the World War II War Production Board.

He has a well-earned reputation as a man who gets things done. And he is bringing into town many other men who know how to get things done. It is Sidney Weinberg's job to get these men. Mr. Weinberg, a partner in Goldman Sachs & Company and a director of many corporations, is no novice in Washington. He, too, was with the War Production Board performing the very same function.

All in all, Washington is becoming well supplied with "do-ers". Elsewhere, too, in the defense set-up, the emphasis is on getting things moving. For example, the economic stabilizers are quarreling over how to apply controls most quickly.

With so many people in charge of doing so many things all at the same time, it is no wonder that Washington is taking on the appearance of a three-ring circus; and it is inevitable that many false starts should be made and that many people should be working at cross purposes.

The saddest person in town is the business man with a problem. When he left his home, let us say Minneapolis, to come to Washington, he was armed with an introduction to Mr. Harrison, administrator of the National Production Authority. Mr. Harrison was then regarded as the top man in production problems.

On the train coming east, he read that Charles E. Wilson had been appointed as top man. By the time he got his feet on the ground in Washington, Mr. Harrison no longer was even administrator of the National Production Authority. He was chairman of the Defense Production Board.

The National Production Authority did not seem to have a head. Later Manley Fleischman seemed to be appointed Acting Administrator, and before he left, eight or ten other shifts had taken place.

By S. HERBERT UNTERBERGER

Who is in charge of what changes from day to day. The "do-ers" are doing one thing today and something else tomorrow. The larger businesses are setting up full-time men in Washington or are increasing their Washington staffs. Somewhat smaller businesses find it is far more efficient to retain persons with Washington know-how than to try to weave through the Washington labyrinth unguided.

If activity will solve our problems, there is no shortage of it here. With all the "do-ers" circling around, it is a great relief to run into a group of men whose function is not to do but rather to observe the scene and make intelligent comments about it.

The Council of Economic Advisors comes closest to meeting this need. This is a group of three outstanding economists established by the Employment Act of 1946 whose function it is to analyze the developments in the nation's economy and to advise the President about them.

The Council's Fifth Annual Report, entitled *The Economics of National Defense*, offers the calmest appraisal of our current situation found in Washington. It is regrettable that so much of this report is written in the stilted language of the professional economist. Nevertheless, it talks sense.

First, it sets up the problem as follows: "Speed, and more speed, is imperative in all that we do to reach the goals we set for building up our maximum strength. We must achieve this strength as quickly as possible. *But first of all, we must define what composition of strength we strive for.* There are many elements in our total strength—including economic and military—and since we can not build them all up with economic rapidity, we must decide the relative weight to be accorded to different elements. This in turn depends upon constant strategic appraisal of the world situation. Speed is not achieved by doing the wrong things first, nor by trying to do everything at the same time." (Emphasis supplied). It is to be hoped that this plea for a rational approach to our defense program will not fall on deaf ears.

The Council then goes on to point out that an "all-out effort" is necessary. This is nothing new. Everybody is saying this. But the Council makes some sage observation on what constitutes an all-out effort, as follows:

"According to those most competent to judge, our peril is great and time is short. Because the problems before us are now so grave, because the need for speed in their solution is so acute, and because the policies needed are so vigorous and comprehensive, it is frequently stated that we must make an 'all-out effort.'

"This statement is correct in a vital sense. We must let nothing interfere with, and we can exempt no sector of the population from participation in, a maximum national effort to achieve lasting security founded upon justice. But emphasis upon an 'all-out effort' does not define what should be done, especially because the specific content of such an effort must vary under differing circumstances. This specific content must above all be attuned to the factor of timing, which in turn depends upon the basic strategy of our defense policy in the light of world events.

"We want to make an 'all-out effort' to achieve as speedily as possible an armed force of a size which will maximize our primary security. But what the immediate target for armed strength best designed to accomplish this purpose should be, depends upon the best informed judgment as to the tempo of the contest and as to when the danger may be greatest.

"An 'all-out effort' on the economic front must be geared to the same strategic concept which governs the military effort.

"An 'all-out' productive effort is one which achieves as speedily as possible the type of economic strength we need to cope with the world situation. But when such questions arise as apportioning scarce materials among military purposes and stockpiling on the one hand and the expansion of plant capacity on the other, the decision depends upon whether or not it would be wisest on balance to delay a portion of the immediate military build-up in order to develop more industrial strength to increase our future military potential.

"We must make an 'all-out effort' to use our labor force efficiently and fully. By depending upon the timing factor, we may decide to draw cer-

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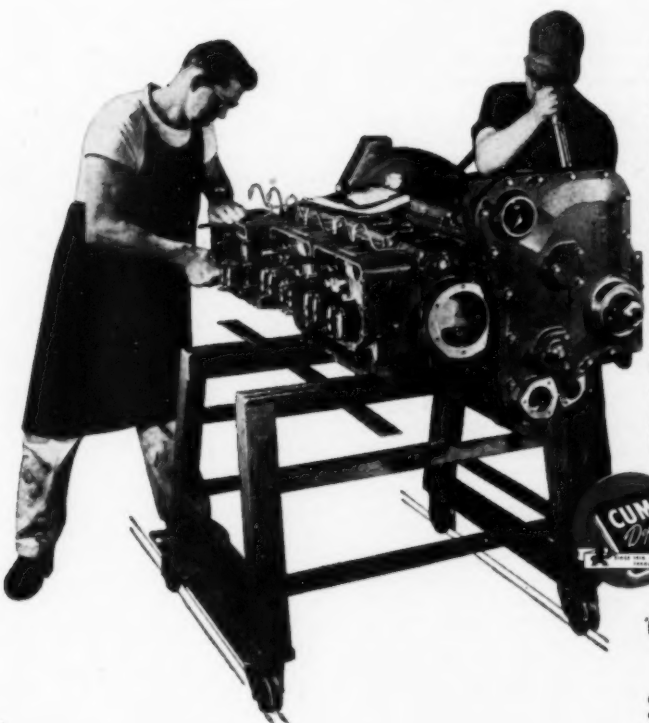

Typical of the extra care that goes into the building of *every* rugged, dependable Diesel is the tear-down of the engine after assembly. First the engine is run in on the test block. Then it is completely torn down and carefully re-inspected. After that it is re-assembled and tested *again*.

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tain groups into the armed forces immediately with less skills or permit some of them to get more education before they are drawn into the armed forces.

"An 'all-out' civilian effort, which is desirable, involves whatever exertions and sacrifices our national security demands. A similar principle applies to the imposition of controls. But a particular set of sacrifices and controls, which would strengthen us under one pattern of economic and military build-up, industrial production, and protection of the public.

"All this is to illustrate that the kind of 'all-out effort' we must make should be founded upon some primary assumptions concerning the nature of the content in which we are engaged. It would be fortunate if things were so simple that we could adjust all of our efforts fully to the contingency of a total war tomorrow, and at the same time adjust all of our efforts fully to the contingency that total war may not come for some time or may be avoided entirely through deterring of aggression. But there is no such thing in complex national and world affairs as preparing equally for all contingencies at once, because different assumptions call for different kinds of preparation. It is necessary to determine which contingencies seem most likely, and to make an 'all-out effort' to get ready for those; although at the same time enough should be held in reserve and enough flexibility maintained to alter our course rapidly if other contingencies become more pressing.

"Economic mobilization in times like these should strive to be 'all-out' or 'complete,' in the sense of moving as rapidly as possible toward accomplishing defined objectives. These objectives comprise a new pattern of resource use. This new pattern is not the same, and does not call for exactly the same measures, as in the event of a full-scale war or full mobilization of our total armed strength. But the type of economic mobilization we are now undertaking means, at the very least, an enormous shift in our current pattern of resource use. The effort will be successful to the extent that this shift is rapid but also sensible. The effort would fail if the shift were either tardy or ill-considered.

"Obviously, the nature and timing of this required shift must be defined before it can be accomplished. Thus the definition of the new pattern of resource use called for by the emergency is the starting point and *sine qua non* for all rational economic policy in a mobilization period."

The Council also sets forth the following seven high points for immediate action:

"*First.* The size of short-run military requirements should be crystallized as rapidly and completely as possible, not only in terms of dollars, but more importantly in terms of goods and services. All other policies cannot await this, but no other policies can proceed very far until this issue takes fairly definite shape. The situation here must remain fluid; but it cannot be formless.

"*Second.* Economic mobilization rests above all on the most efficient use of our total resources, geared to a set of purposes determined by the national emergency. This most efficient use can be defined, and subsequently achieved, only by a consistent and comprehensive programming of basic requirements, matched constantly against available supplies. This basic programming effort should be located in one place under one direction and, being the primary tool of major policy, requires at least very close affiliation with the authority for directing and coordinating defense production and economic mobilization. Every specific economic policy should contribute to satisfying program requirements, whether this be accomplished by expansion programs, cutbacks, allocations, indirect controls like taxation and credit, or direct controls over prices and wages.

"*Third.* On the basis of this programming operation, there need to be developed some vital goals or targets to guide the efforts of the nation. The most important of these are some targets for production, because of the great importance of expanding production and adjusting it to defense needs.

"*Fourth.* The tax program should be expanded, with continued adherence to the policy of balancing the budget as the basic measure for combatting inflationary pressures. The distribution of the incidence of new taxation should be guided particularly by the objectives of reducing inflationary pressures, distributing sacrifices equitably, maintaining public morale, and not discouraging desired production.

"*Fifth.* The control of prices and wages now having been initiated, the programs should move forward to forestall insofar as possible the further lifting of price and wage levels and the resulting distortion of price and wage patterns. Both price and wage policy should be integrated with other policies in promoting the defense program, and this will require some flexibility in controls.

"*Sixth.* Ingenuity and experimentation should be directed toward building up processes of consultation and cooperation between government and the major economic groups. This will help not only in the formulation of policy, but also in its execution. It is superficial and dangerous to conclude that a defense emergency must convert us into a totalitarian state.

"*Seventh.* Increasingly better methods must be developed for disseminating to the public the fullest and most candid information about the need for and the methods of economic mobilization. The imperative need of public support, based on the facts, cannot be overlooked without paying a penalty of incalculable size."

In its closing statement the Council makes a challenging statement of our current dilemma which is well worth everyone's thoughtful consideration:

"It has always been a source of pride in our democracy that the people are willing to take deliberate action to protect and strengthen the nation, whatever burden or sacrifice it may impose upon the citizen. We have now entered a long period in which the people must be asked, in support of the policy of girding for defense, to subject themselves to many restrictions and levies which they would not tolerate in more peaceful times.

"That they are willing to have their young men torn from their families, their education and their careers, and placed in the front line before an enemy—this they have amply demonstrated. But are they willing to adopt positive policies resulting in the infinitely lesser hardship of economic restraint?

"To this question the whole country awaits the answer. Will some spokesmen for business insist that there be no restraint upon prices which would reduce business profits below the highest levels in history? Will some spokesmen for farmers insist that rising farm price support levels are sacrosanct in this period of emergency regardless of their nullifying effects on the effort to stabilize the cost of living? Will some spokesmen for labor, even during the emergency, insist upon a peacetime wage policy which would absolve those they represent from sharing fairly in the inevitable burden of national defense? These are blunt questions, but these and others

like them are vital to our future.

"Is there going to be a scramble for self-protection, or common dedication to the protection of the United States?

"It is not only justifiable but essential that we be ever-vigilant to prevent any exploitation of the present emergency to strike down policies which have contributed to the economic and social advance of the last generation. But the hard fact is that our defense program cannot be carried forward faster, without slowing down on many other things. If every economic group uses its power only to protect its own position, or if each demands that it be the last to do its part, the nation will fail in its great purposes."

Mantle Hardfacing

(*From page* 54)

Ranite BX hard-facing rod and 200 lbs. of 3/16-in. Arcos stainless, building up a uniform thickness of 2 in. around the bottom of the mantle and extending upward about 18 in., the area where most wear occurs. Meanwhile, new concaves had been installed and the crusher was re-assembled.

At least three weeks of down time was saved by the hard-facing procedure, enabling the plant to resume production before its stockpiles were depleted. Not only that, but Supt. O'Brien is confident that the rebuilt mantle will give many more hours of service than a brand new installation, at a fraction of the cost. When the plant was visited early in November, the crusher had been back in continuous service for five months and was operating as well as ever.

Bull in a China Shop

(*From page* 56)

because of the limited rock supply at Palolo and the added public nuisance involved. The problem was simply one of arriving at the least expensive method of getting boulder stone from the new pit to the existing crushing plant.

The hauling units desired had to meet the following conditions: haul the largest possible legal payload, haul boulder rock safely and without spillage through residential areas and over city streets, dump rapidly and cleanly at the primary crusher, and load rapidly under a 2½-cu. yd. shovel.

The Easton side-dump, lift-door semi-trailer body was decided upon as best adapted to the job conditions, and our operating experience verifies the wisdom of our decision. We had previously used hydraulic hoist end-dump trucks without tail gates in the old Moiliili Quarry operations. Such units could not be considered on the 3½-mile haul because tail gates are not practical for boulder rock and considerable spillage occurs without them. Also the payload factor is most favorable for a truck tractor semi-trailer combination. Maintenance costs are obviously less on rock bodies without individual hoists such as our Easton side-dump units, and there is a further very important and large saving in first cost. Our Easton units have been working for almost a year free of any maintenance on the bodies or dump arrangement. What small amount of maintenance there has been is confined to the trailer undercarriage or running gear and has been mostly brake servicing.

Dumping speed at the primary crusher with the side-dump trailer unit was increased considerably over that of the conventional hydraulic hoist end-dump truck. Our comparative records clearly show a 60 percent improvement in the dumping cycle time.

Our boulder stone hauling operation is being handled by ten trailer units which can and do make round trips in 30 minutes but actually average 12 trips per 8 hours, due to varying job conditions. We have hauled a high of 2,500 tons in 8 hours when all conditions were ideal; our average is 1,800 tons.

During the five-day workweek, to avoid traffic congestion, we begin hauling at 6:00 a. m. and stop at 3:00 p. m., a schedule which eliminates adding to the city traffic jams after 4:00 p. m. All road grades from the pit to the crushing plant are down grades, starting at 9½ percent in the quarry and from 0.0 percent to 4½ percent on the city streets. To date we have not had any traffic accidents. This fine record is attributed to painstaking driver instruction and alertness to the mechanical condition of the basically excellent equipment.

The cost of hauling this boulder stone is 60 cents per mile or $4.20 for each 7-mile round trip. The average payload is 18 tons, and our analysis shows a favorable 3½-mile hauling cost when we consider the adverse conditions of large units traveling through narrow residential streets having an unusually large population of children. Moreover, the units are subject to the mechanical whims of a single loading shovel (caused by space limitations in the quarry pit).

We work hard at minimizing the "public nuisance" angle involved, and we feel we are doing a most difficult job with the minimum of ill will. Our Easton units have contributed greatly to controlling some of the potential nuisances of the operation and we are certain that we have the best equipment for the job.

Of course, we are looking forward to the day when the Palolo Quarry reserves are exhausted and we can move out into the true "country", which we hope will remain "country" for 50 years. Then, when you come to Honolulu you will see only the beautiful flowers, hotels, and beaches and hear only the soft lilting music of the beach boys as the trade winds softly caress you. Aloha Nui Oe—Aloha!

Synthetic Cement Produced By Newly-Patented Process

By means of a new technique recently patented, industrially important cement and sulphuric acid can be obtained from gypsum. In a special process suggested by the inventor, phosphate rock may be added, to be converted into a superphosphate by the acid formed.

In the course of the process, gypsum (calcium sulphate) is converted into lime (calcium oxide) and sulphur trioxide, which, combined with water makes sulphuric acid. The acid-and-cement producing technique utilizes a material such as silicon dioxide or aluminum oxide together with gypsum and a coke containing a catalyzer. The result is sulphuric acid and a good grade of hydraulic cement in sufficient quantity to offset the cost of making the acid.

Billion-Dollar Construction Seen for Chicago's Boul Mich

Barring full curtailment of commercial construction by the government, nearly a billion dollars may be spent to develop new shopping and residential buildings along Chicago's North Michigan Avenue in the next few years.

In announcing these plans, Robert W. Rutledge, executive director of the North Michigan Avenue Association, disclosed that at present there is $51,000,000 worth of construction under way along Chicago's "magnificent mile." Mr. Rutledge made this announcement at a meeting of the Metropolitan Chicago Research Center of Northwestern University.

Plans for the future include four or more office and store-type buildings of from 20 to 30 stories each, several new hotels, and a 5,000 space off-the-street parking area with underground units to serve as atom bomb shelters.

Nonmetallics Executives Named to C. of C. Group

The Manufacture Committee of the Chamber of Commerce of the United States will soon review the program being organized under the Defense Production Act of 1950. The committee will discuss problems relating to rearmament and industrial capacity to meet military and essential civilian needs.

Members of the committee who are familiar with the problems of nonmetallic minerals include Melvin H. Baker, president, National Gypsum Company, Buffalo, N. Y.; Peter Colefax, president, American Potash and Chemical Corporation, Los Angeles, Calif.; and George A. Mattison Jr., president, Woodstock Slag Corporation, Birmingham, Ala.

Perlite Southwest, Inc. Expands Pyrolite Output

To keep pace with the building boom in the Dallas area, Perlite Southwest, Ins., has increased its production of lightweight aggregate.

Perlite S. W.'s President Orlan I. Dallas says the firm, which has been in operation for slightly over a year, has extended the use of its product, Pyrolite, to individual major construction jobs through the use of portable units.

personal mention

The following appointments have been announced by the board of directors of the North American Cement Corporation, New York, N. Y.:

FRANCIS B. CUMMINGS, secretary and treasurer; WALTER C. LAUT, controller and assistant secretary; CLARK V. HENDEE, assistant secretary; and HENRY ULRICH JR., assistant controller.

JOHN B. WOODWARD has joined the firm of W. R. Bendy, as cement engineer. A graduate of the Missouri School of Mines with a degree in civil engineering, Mr. Woodward was previously associated with the following firms: the Alpha Cement Company, the Missouri Portland Cement Company, and the Marquette Cement Manufacturing Company. While serving as chief engineer with the Missouri Portland Cement Company, Mr. Woodward was active in the development and construction of the St. Louis mill and quarry at St. Louis and of the harbor facilities and terminal at Memphis, Tenn.

Z. W. BARTLETT, assistant general superintendent of the Grande Ecaille location of Freeport Sulphur Company, has been named assistant to the general manager in the New Orleans office.

COLONEL HENRY CROWN of Material Service Corp., Chicago, is serving on the campaign committee of the Illinois Chapter of the Arthritis and Rheumatism Foundation.

JOHN J. CELLA, associated with the National Gypsum Company for the last ten years, was recently elected to the board of directors of that firm. Mr. Cella succeeds Gordon H. Tarbell, who died last Spring.

ROBERT M. COOK has been appointed manager of the newly organized Strata-Crete Sales Division of Great Lakes Carbon Corporation. This announcement, made by Henry L. Walker Jr., executive vice-president, was effective December 1, 1950.

Mr. Cook was previously vice-president and general sales manager of Security Engineering Company and before that vice-president and general manager of International Cementers, Inc. He will maintain offices at 5845 Atlantic Ave., Long Beach 5, Calif.

The appointment of RALPH B. WITHERSPOON, assistant credit manager for the Universal Atlas Cement Company at Kansas City, Mo., as assistant treasurer at Pittsburgh, Pa., was announced on December 1 by T. E. O'Connor, treasurer of this U. S. Steel subsidiary. Mr. Witherspoon succeeds Daniel V. Johnson, who retired after more than 36 years of service with the corporation.

Mr. Witherspoon started with the cement company in 1923 as cashier in its Independence, Kan., office, and four years later was transferred to the company's credit office in St. Louis. There, in 1929, he was advanced to assistant credit manager. He was subsequently transferred to Kansas City in the same capacity and he has since been active in that post.

Mr. Johnson began his career with U. S. Steel in 1914. From 1919 to 1928 he served as car agent for the Illinois Steel Company in Chicago and Columbus, O. He joined Universal Atlas in 1928 as a salesman in Cleveland and two years later was transferred to the Pittsburgh credit office. There he advanced (1936) to assistant treasurer.

F. J. SHIELDS has been named superintendent of the L. W. Hayes, Inc., quarries at Bethany, Mo., replacing James McInrue.

ROBERT J. UNGER has been made assistant to the president of the Lawrence Portland Cement Company.

Mr. Unger joined Lawrence in 1935 as a member of the sales department, and from April 1938 to December 1942 was the company's sales representative in Connecticut. He spent the next three and a half years in the Army, half of the time in Europe.

Upon his return to civil life he rejoined Lawrence as a member of the purchasing department, and was assistant purchasing agent before being promoted to his present position.

GUY FRIDAY has been named superintendent of the Ideal Cement Company plant at Baton Rouge, La. He previously was assistant superintendent of the Portland, Ore., plant.

EARL A. KNOWLES was recently promoted from assistant sales manager to the position of sales manager of the Ideal Cement Company's Colorado Division. He will have his headquarters at Denver.

At the same time the promotion of CECIL J. ELLIOTT from assistant sales manager to the post of sales manager of the Gulf Division was announced. Mr. Elliott will maintain headquarters at Houston, Tex.

J. B. LEWIS, former manager of the Universal Atlas Cement Company at Buffington, Ind., has announced his retirement as assistant to L. M. Funderburg, operating vice-president of that U. S. Steel Corporation subsidiary.

Mr. Lewis, who headed the firm's operations at Buffington for seven years, was made assistant to Mr. Funderburg last year. He has been with Universal since 1907, and served at Buffington from 1911 until his promotion in December, 1949.

FRANK E. RENWICK has been elected vice-president and treasurer of the Chicago Gravel Company, Chicago, Ill., succeeding Alfred C. Piske, who has retired.

CHARLES H. WICKS, formerly with the Corps of Engineers, U.S. Army, Chicago District, joined the company on January 1 in the capacity of assistant to the president.

CARLOS L. CINTRON, formerly superintendent of the Ponce Cement Corporation, has been appointed production manager of the Puerto Rico Cement Corporation at Guaynabo, P. R. Mr. Cintron, a chemical engineering graduate of the engineering college, University of Puerto Rico, served as senior chemist of the Puerto Rico Cement Corp. from 1936 to 1941. From 1942 to 1950 he was superintendent of the Ponce Cement Corp.

ALLEN CASSIN, formerly manager of the Celotex Cleveland branch, has been appointed an assistant general sales manager. He will supervise all of the corporation's branches in the East, including the Washington office. His headquarters will be in Washington.

According to an announcement from the Carbon Limestone Company, GEORGE H. DONALDSON has been appointed vice-president in charge of operations of both the Carbon Limestone Company and the Carbon Concrete Brick Company at Lowellville, O.

FRANCIS KERNAN was recently elected a director of Freeport Sulphur Company of New York. Mr. Kernan is a director of several independent oil and gas companies.

PURD B. WRIGHT, JR. was appointed general sales manager of the Ash Grove Lime and Portland Cement Company, Kansas City, Mo., on January 4. Mr. Wright has been sales manager for Ash Grove in the Kansas City territory for the last five years. His headquarters will be in Kansas City.

W. C. Healy was appointed industrial relations superintendent for the Potash Division, International Mineral and Chemical Corporation, on December 1, replacing W. Keith Hafer. Mr. Healy was formerly assistant to Mr. Hafer.

Lloyd W. Strayer, chief civil engineer of the Pittsburgh Limestone Company, has retired from active duty after 31 years with the company.

After a vacation in Florida, Mr. Strayer will return to Pittsburgh and become consulting engineer for the Michigan Limestone and Chemical Company, successor to Pittsburgh Limestone and a subsidiary of U. S. Steel Corporation.

William H. Bartlett, chief accountant for the Potash Company of America since 1943, was recently elected controller of the firm at a meeting of its board of directors.

Columbia Gypsum Products, Inc., Spokane, Wash., recently added four new directors to its board: Joe Lux, who is also secretary-treasurer, succeeding Walter L. Park; W. C. Raugust; Charles Carrol; E. J. Simon, Jr.; and John C. Tenold, who is vice-president.

Officials of the Halliburton Oil Well Cementing Company at Casper, Wyo., recently announced several promotions. O. L. Stalcup, formerly assistant division superintendent, was made division superintendent of the Rocky Mountain Division. E. C. Stuart, formerly a field man at Hobbs, N. M., became district superintendent at Casper.

H. P. Hearn, recently transferred from the Rocky Mountain Division to assume the post of superintendent of the California Division, was presented with a gift in recognition of his service.

obituaries

George E. Cantrell, 70, died October 24 at his home in Haddonfield, N. J. Mr. Cantrell was the former president of the Lenni Quarry Company, the Port Deposit Quarry Company, and the Cantrell Construction Company.

Horace H. Heller, a former assistant superintendent of the Sandts Eddy, Pa., plant of the Lehigh Portland Cement Company, died on November 23 in Easton, Pa. He had retired from his post with Lehigh in 1947. In earlier years he had been associated with the Alpha Portland Cement Company at Easton, the Iola Cement Company at Iola, Ia., and the Bath Cement Company at Bath, Pa.

Elmo J. Dowdall, who retired in 1946 after 40 years as a special representative for the Universal Atlas Cement Company in Chicago, died on November 27 at his home in that city. Mr. Dowdall was 94 years of age.

Bert Cable, who was formerly superintendent of the Portland Cement Company's plant near Bonner Springs, Kan., died in Kansas City, Mo., on November 4. Mr. Cable was 87 years of age.

William H. Kinch, 91, pioneer in the asphalt and construction industry in Buffalo, N. Y., died on November 19. For many years he was president of the Rock Asphalt & Construction Company, Inc., of Buffalo, now known as Rock Asphalt, Inc.

Before the turn of the century, Mr. Kinch helped organize the German Rock Asphalt & Cement Co., Ltd., which laid hundreds of miles of pavement in the Buffalo area. The firm later changed its name to the Rock Asphalt & Construction Co., Inc. Mr. Kinch also was associated with the late Samuel J. Dark in the Buffalo Dredging Company.

Mr. Kinch was president of the Canadian Bituminous Paving Corporation, which laid 100,000 yards of paving in Halifax in 1919 and 1920.

Bertram J. Thompson, 68, superintendent of the Metropolitan Sand and Gravel Company, Port Washington, Long Island, died on November 11. He had been with the company for 45 years.

Chester J. Shafer, formerly a salesman for the Edison Cement Company of New Village, N. J., died recently at his home in Washington, N. J., after an illness of several months.

Dean Ziegler, owner of the Northern Indiana Sand and Gravel Company at Wolcottvile, Ind., died of a heart attack at the age of 72 years.

Charles Ernest Byers, president of the Vincennes Sand and Gravel Company, Vincennes, Ind., died recently at a local hospital. He was 70 years old.

George T. McCarthy Jr., president of the New Haven Trap Rock Company, New Haven, Conn., died recently in Palm Beach, Fla., where he was spending the winter. He was 62 years of age. Mr. McCarthy was also president of the Silliman and Godfrey Corporation, contractors, and an active leader in civic affairs.

Redello Guiliana, 32, suffered a fatal heart attack recently while at work for the McGrath Sand and Gravel Company, Chillicothe, O.

Charles L. Hunt, Rolla, Mo., died on December 25 in St. Louis after an illness of several weeks. Mr. Hunt was a representative of the U. S. Gypsum Company in Southern Missouri for many years.

R. D. Moritz, Iola, Kan., a retired foreman of the Lehigh Portland Cement Company's Iola plant, died recently at the age of 71.

A. Arnold Brand III, a sales employee of the U. S. Gypsum Company, died in an Oak Park, Ill., hospital on January 21. He was 32 years of age.

Arthur Hallet Cockeram, vice-president of the International Mining Corporation, died on December 29, in Toronto, Canada, at the age of 66. Mr. Cockeram prospected extensively in Canada and was the first president of the Prospectors and Developers Association.

James W. Washburn, former partner of the Berkshire Gravel Company, Pittsfield, Mass., died on December 8 in a local hospital after an extended illness. He retired from active participation in the business five years ago because of ill health. He formed a partnership in the gravel company in 1919 with Adelbert I. Newton. Previously the business had been operated by Mr. Washburn's father. He was 58 years of age.

Harry D. Bellamy, who pioneered in the sand-and-gravel industry of Iowa, died on January 10 in New York. He had been in failing health for several months.

Mr. Bellamy, chairman of the board of Concrete Materials and Construction Company of Cedar Rapids and president of the Concrete Materials Company of Waterloo, Ia., had been in the sand-and-gravel business since 1908. He was 66 years of age.

His first business venture was a sand-and-gravel plant in Eddyville, Ia., and he soon operated several plants in Iowa and Illinois. In 1927 he became associated with T. E. Rust in the Concrete Materials Company at Waterloo. Nine years later he formed the Concrete Materials and Construction Company at Cedar Rapids with S. P. Moore. More recently he was employed by the Rock Island Railroad and as commercial agent for the Wabash Railroad in Des Moines.

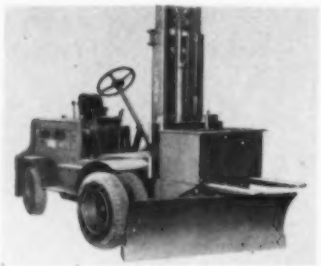
Calcium Carbonate Enterprises, a partnership of four Oelwein, Ia., business men, is constructing a $150,000 limestone processing plant near Lamont, Ia. The partners are John Alessio, Stewart A. Patton, Paul Weishaple, and Pete Stasi.

new machinery and supplies

PIT AND QUARRY

● Snow Removal Attachment

The Clark Equipment Company, Battle Creek, Mich., presents an attachment for lift trucks to permit them to be used for snow removal. The attachment slips



on the forks of the trucks and operates with them in a raised position.

The blade is adjustable and has been designed with proper curvature and reinforced edges for heavy use. A weight box enables the operator to add to the traction, if needed. Easy, hand-operated fastenings and adjustments make this handy for rapid attaching and detaching.

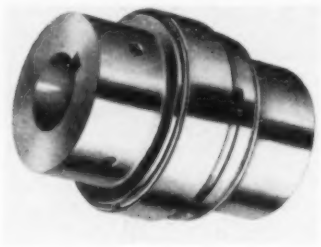
● Motor Speed Adjuster

General Electric Company's Small and Medium Motor Divisions have developed a mechanical follow-up control for achieving a fixed preset speed on a.-c. adjustable speed motors.

With this new device speeds are set manually on the motor or the end of flexible cable 10 to 15 ft. away. Speed adjustments are made with the motor stopped or running. Stopping or slowdown sets the device for the lowest possible speed, which returns to the preset speed without attention from the operator. The device is especially useful for drives on conveyors, ball mills, small rolling mills, mixers, fan drives, etc.

● Flexible Motor Coupling

A flexible coupling embodying several improvements is being made by the Lovejoy Flexible Coupling Company, 5001 W. Lake St., Chicago 44, Ill. These couplings are designed for use on pumps, compressors, generators, pulverizers and other machinery from 50 to 1,000 hp.



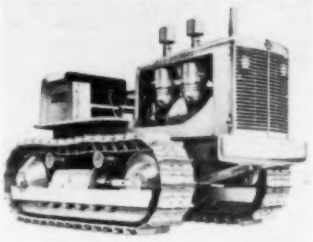
The couplings adjust for misalignment, shock, vibration, oscillation, surge, or backlash.

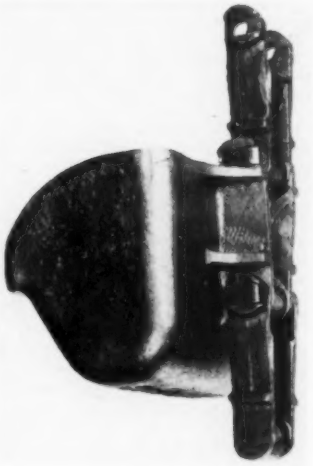
The following features are cited for the improved Lovejoy L-R Type "C" and "H": easier installation; larger bore capacities; two-part inner sleeve, with both bodies machined alike for the removable steel collar; and snap-ring collar holder. Load cushions are interchangeable without tearing down the coupling. The metal jaws are designed to give long service.

● Crawler Tractors

Allis-Chalmers, Milwaukee, Wis., announces two new crawler tractors for spring delivery. The models "HD-9" and "HD-15" complete the line of new models in the four major power classes.

The HD-9 weighs 18,500 lbs. and has a drawbar pull of 70 hp. The HD-15 (illustrated) weighs 27,500 lbs. and develops 102 hp. There are six forward and three reverse speeds on each, operating through a constant mesh transmission. Power is supplied by GM 2-cycle diesel engines. Unit construction on major components provides for rapid replacement or repair of assemblies when necessary. It is claimed that many other features have been incorporated that make these tractors the latest word in performance and design.





Cast integrally with a single link of chain, Beaumont Birch Beaucalloy "Unicast" buckets cannot loosen and fall off. They are as easy to replace as a link of chain, and have no raised surfaces or bolt heads on the inside of the bucket. They are made of Beaucalloy, a heat-treated alloy steel of exceptional durability, and are stocked in five popular sizes. Others can be furnished to meet requirements, according to the Beaumont Birch Company, 1505 Race st., Philadelphia 2, Pa.

B.F.Goodrich

Working on the levee with 33-ton loads —this job calls for Super Traction!

WORKING on a levee enlargement job, the bottom-dump Euclid shown above is being loaded with over fifteen cubic yards of fill dirt from a borrow pit. Add an equipment weight of 35,700 pounds and this king-sized load represents a real traction job. When you consider that the thirty-three tons must be worked over soft, sandy loam—you have a job for super traction!

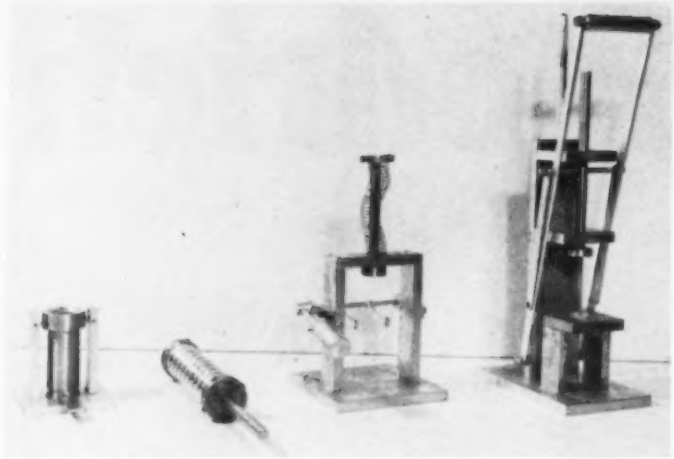
That's where the B.F.Goodrich Super Traction tire takes over. Notice the wide, deep footprint left by these tires—especially designed for jobs where real pulling power is needed in sand, loam, mud and soft dirt. The deep cleats take a big bite, yet this tire is built *wide* to "float" as it rolls. Designed for drive wheels, it serves equally well on free-rolling wheels in *reversed* position. That's the success story of the BFG Super Traction.

In addition to a longer-wearing tread compound, all B.F.Goodrich off-the-road tires offer you the exclusive protection of a *nylon shock shield* (double in the larger sizes). Layers of nylon cord are built into the tire between the tread and the rayon cord body. This shields the backbone of the tire against shocks and costly bruise breaks.

Such patented protection as the nylon shock shield is yours at no extra cost when the B.F.Goodrich brand is on your off-the-road equipment. There's a specially-designed, deep tread for every job.

See your B.F.Goodrich Dealer. Specify BFG tires for your new equipment. Enjoy the longer service and lower operating overhead offered you by *The B.F.Goodrich Company, Akron, Ohio.*

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER



● Compaction Apparatus

Harvard miniature compaction apparatus utilizes a novel method of soil compaction. Consistent moisture-density relationships closely duplicating field compaction curves can be developed rapidly with the minimum of effort and material. Unit consists of a tamper, mold, collar remover, and sample ejector. Soil Testing Services, Inc., 525 N. Noble Street, Chicago 22, Ill.

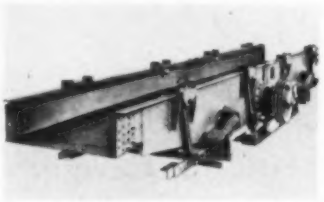
● Respirator Dust Hood

A dust hood incorporating a respirator to give protection to the eyes, head, and neck, as well as to respiratory organs is announced by the American

Optical Company, Southbridge, Mass. The "75" is a light, comfortable hood with a 10-in. window of clear cellulose acetate for unobstructed vision. The respirator can be equipped with any of seven cartridges for specific hazards of dusts and gases.

● Vibrating Units

Two vibrating machines, incorporating new principles for producing vibratory motion, have been announced by the Robins Conveyors Division, Hewitt-Robins Inc. Design of the "Vibra-Feeder", employing mechanical (rather than electromagnetic) means of operation, is said to have eliminated many parts, some of which require costly maintenance. Only 2 ampere-draw is required from its 1-, 1½-, or 2-hp. motor. The following advantages are claimed by the manufacturer: low initial cost; economical power requirements; simple, fully mechanical and noise-free operation; high efficiency; spring mounting; rugged construction; low head room; high capacity (limited only by the size of the pan); elimination of shut-downs; optional base or suspension mounting.



The "Vibra-Veyor" producers balanced mechanical operation without counterweights. One special feature claimed for

this unit is its ability to function from lengths up to 200 ft., activated by a single vibrator. Simple design also aids in reducing maintenance costs in this device. Like the Vibra-Feeder, it can be operated horizontally, downhill, and uphill (to 10 degrees). This unit is characterized by the outstanding features of the Vibra-Feeder.

● Constant Volt Generators

A line of "Packaged" generators is being manufactured by the Electric Machinery Manufacturing Company, Minneapolis 13, Minn. These are available from 3.75 to 187 kv.-a. and feature constant voltage without accessory equipment. They are made in several sizes to fit a variety of power sources and can be had as single or multi-phase units, from 120 to 480 volts.

● Heavy-Duty Truck

Cook Bros. Equipment Company, 1815 N. Broadway, Los Angeles, 31, Calif., have introduced a heavy-duty truck, the "C 12".

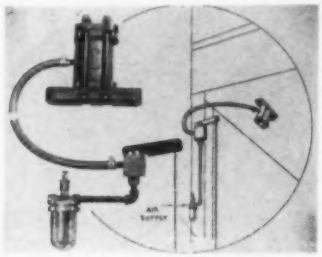
The truck has an alloy steel frame with a 191-in. wheelbase. Power is supplied by a 6-cylinder Continental engine that develops 198 hp. The driving axle is full-floating, double reduction, with a capacity of 20,000 lbs. A Fuller 5-speed transmission and a C-B three-speed auxiliary transmission provide a wide range of speeds. Westinghouse air brakes, Shuler 10,000-lb. front axle, Ross cam and lever steering column, Delco-Remy electrical system, and Budd 10-stud wheels are additional features.

The C12 makes a good tractor for hauling large semi-trailers. It can be had with single-drive axle, single-drive and third axle, or dual gear drive axle. The body is of high-tensile steel with 9-cu. yd. capacity.

● Packaged Vibrator Kit

A packaged kit, the "LVF", containing all necessary parts for an efficient vibrator installation is available from the Cleveland Vibrator Company, Cleveland 13, O.

Contents include a pneumatic vibrator, a control valve, an air line lubricator,

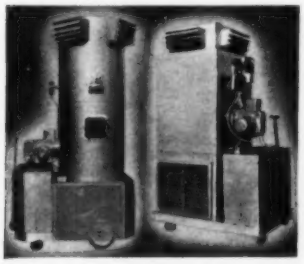


and nipple and connectors for easy attachment to hoppers, bins, and similar storage containers holding sand, coal, lime, cinders, slag, cement, etc.

Any of six standard vibrators with piston sizes from 1¼ to 4 in., and overall widths from 3 to 7½ in. may be obtained in an LVF. Other heavier models can be supplied on request. Speeds of the vibrators can be regulated by adjusting air line pressure. The air line valve can be operated manually, by chain, or automatically connected to control gates. The lubricator features a transparent, plastic reservoir for visual inspection. Simplicity, ease of installation, and versatility of application are the main features of this kit.

● Portable Heating Plant

Portable "Thermoblocs" provide a complete heating unit, including fuel tank, mounted on easy operating trucks



for heating on construction jobs, quarries, and other temporary applications.

Prat-Daniel Corporation, East Port Chester, Conn., cite efficiency and space saving for these units. In addition, the heater may be moved about until the most effective spot is found. Sizes range from 300,000 to 1,000,000 B.t.u.

● Triangular Rock Drill

A triangular-shaped rock drill for granite, sandstone, hard limestone, concrete, etc., has been introduced by Kennametal, Inc., Latrobe, Pa.

The "Tri-Point" drills have heat treated alloy shanks and tips of vacuum sintered cemented carbide. They are used in electric or air hammers. Maxi-

mum resistance to wear and shock, freedom from packing, and penetration of the hardest rock are claimed for the new drills. Diameters range from ⅜ to 1 in. and lengths from 7⅜ to 12 in., depending on size.

● Enclosed Circuit Breaker

Individually-mounted, low-voltage air circuit breaker Types "G-25" and "G-50" are now available from Allis-Chalmers, Milwaukee, Wis. Previously this unit was obtainable only as bare breakers or in switchgear.

The individual units have sheet steel enclosures that protect the breaker and cable connections. The front has a removable hinged panel, ventilating louvers, latching and locking devices, and flash barriers. Weatherproof units are rubber gasketed. The breakers can be used wherever there is a low voltage circuit of 600 a.-c. volts or less.

● Bag Packer Conveyor

The Flexoveyor Manufacturing Company, 1220 S. Acoma St., Denver, Colo., has designed a motor-driven conveyor especially for use with valve bag packers. The conveying element is composed of endless spring belts running over grooved rolls. Loose material on the bag or the packer drops through the springs onto the floor, where it can be cleaned out. The fluttering action of the springs makes them self-cleaning.

The conveyor, which is reversible, requires only 7 in. of headroom; it can be installed close to the floor or high enough to telescope a carloading conveyor underneath.

● Vertical Turbine Pumps

A line of new vertical turbine pumps has been added by the Worthington Pump and Machinery Corporation, Harrison, N. J. Pump capacities range from 50 to 15,000 g.p.m.

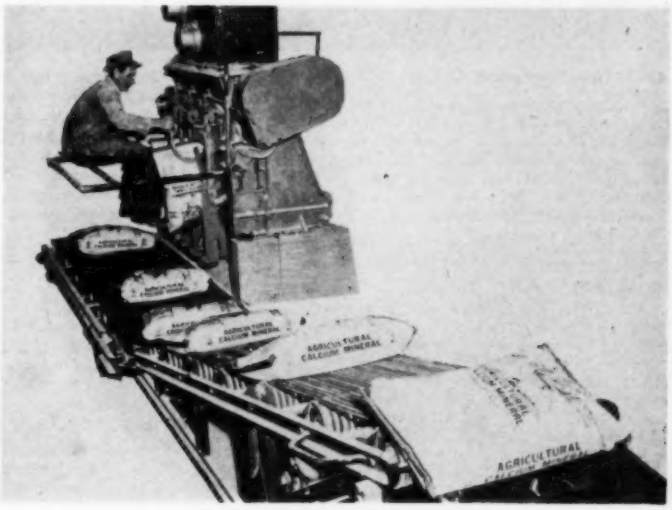
The new line has extra size bearings

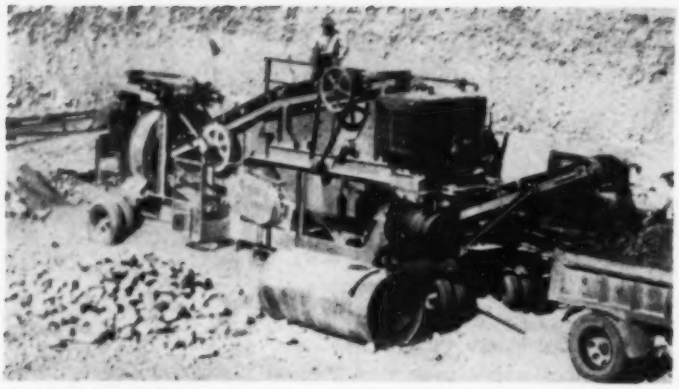
of special material, shaft seals, enclosed impellers, wearing rings, and flanged and bolted bowl construction.

Motor-driven, right angle gear-driven, or belt-driven models, with oil or water lubrication, are available for a wide range of uses. The pumps are suitable for water pumping from wells, sumps, streams, and reservoirs.

● Steam Turbine-Generators

The "WA-Series" of steam turbine-generator units has been announced by Allis-Chalmers, Milwaukee, Wis. The modern units are available in 500- to 7,500-kw. ratings. They are high-speed, compact and streamlined units which can be operated with regenerative feedwater heating cycles, and can be tied in to provide a steam-power balance where low-pressure process steam is used.





● Small Gravel Plant

Improvements to the Model 880 Junior B "Gravelmaster" plant are announced by the Universal Engineering Corporation, Cedar Rapids, Ia. This is the smallest of the four plants produced by the company for crushing, screening, and loading gravel.

Improved features are as follows: lower height; increased screening area with a 2- by 8-ft. 2½ deck screen; and chip removal. A 10- by 16-in. roller-bearing jaw crusher; an 18- by 16-in. star gear roll crusher, and a shovel-loading hopper (illustrated) or swivel feed conveyor are other features. The plant is said to meet all road limitations and to produce specification material.

● Torque-Powered Crane

A locomotive crane using a hydraulic power transmission unit similar to the automatic transmission in automobiles to operate travel, boom, swing, hoist, and boom hoist mechanisms is being manufactured by The Browning Crane and Shovel Company, 16226 Waterloo Rd., N. E., Cleveland 10, O.

The "Torqflo" locomotive crane is available in three models having from 25 to 50 tons' capacity. Smooth, fast operation with elimination of shocks to cables, clutches, and brakes by the torque power conversion unit are features that make it highly suitable for car switching, magnet hook block, bucket, etc., according to the manufacturer.

● 25-Ton Crane

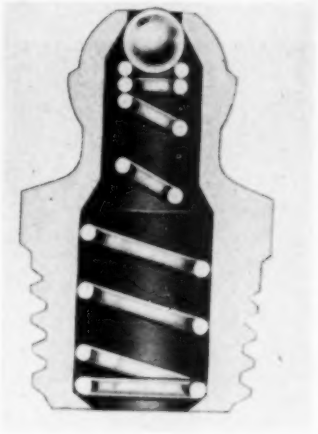
Two new "Moto-Cranes", the MC 504 and MC 504W, are now available from the Thew Shovel Company, Lorain, O. These are rated at 25 tons lifting capacity on outriggers of 10-ft. radius. They are also capable of working with 130 ft. of boom.

The turntable is powered by a 6-cylinder gasoline engine delivering power through a Twin Disc hydraulic coupled power take-off. Multiple strand roller chain conveys power to the operating mechanism. The hydraulic coupling absorbs shocks and in addition permits raising and lowering loads at variable speeds under control of the engine throttle, with smoothness and precision.

The units have all-welded, heavy-duty booms consisting of two 15-ft. sections, pin connected. Center sections may be added to give a 100-ft. boom. Tip extensions of 15 or 30 ft. will extend the boom to a maximum of 130 ft.

These cranes include precision boom lowering, hook block, swing brake, cable and mechanical boom stops, and floating boom harness for 8-part hoisting line. A third drum may be added as extra equipment. Clamshell and dragline buckets are available. The units may be converted to shovel use by adding a 21 or 19 ft. shovel boom. These have a 17 ft. long, square dipper stick and a 1-cu. yd. streamlined bucket.

The cranes are mounted on three-axle rubber-tired carriers. Power, from a separate 6-cylinder 220-hp. engine operates through transmission and two-speed transfer to both rear axles to give ten forward and two reverse speeds.

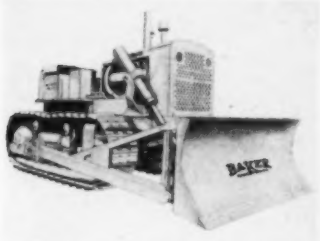


An all-purpose grease fitting the "Kleenseal Bullneck" is now manufactured by the Lincoln Engineering Company, Natural Bridge Ave., St. Louis 20, Mo. Special advantages claimed for the fitting are bearing protection by sealing out dirt; larger grease passage for volume flow; the same fitting for either pressure or volume use; spherical head for maximum contact with all hydraulic couplers; long service life; and sturdy construction.

● Heavy-Duty Attachments

A line of bulldozers, gradebuilders, and root rippers designed especially for use with the new and powerful HD series of Allis-Chalmers crawler tractors, is announced by the Baker Manufacturing Company, Springfield, Ill.

Hydraulic or cable-controlled models are available for all but the smallest size. The new attachments are built more ruggedly to match the increased power of the tractors. Ease of operation and positive control of either upward or



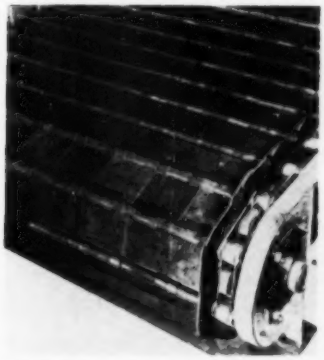
downward motion has been incorporated in the new designs. Sheepsfoot rollers, heavy-duty rippers, snowplows, and power control units are also available, according to company statements.

● Conveyor Belting

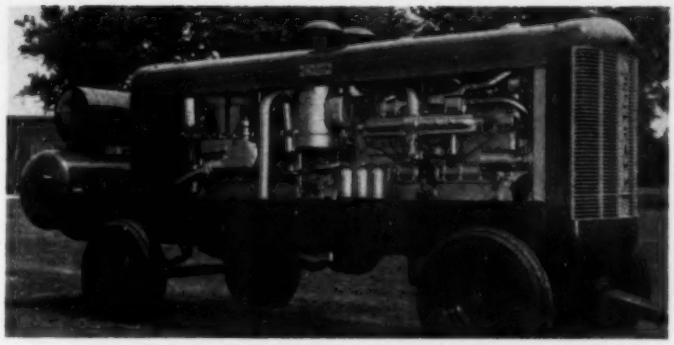
May-Fran Engineering, Incorporated, 1714 Clarkstone Rd., Cleveland, O., announced recently the design and availability of a new "hinged-steel" conveyor belting which has been developed to facilitate mechanized handling of hot or highly abrasive metal parts, as well as wet or dry chips, flash, etc.

One of the features of this new hinged-steel belting is its ease of assembly into almost any required length or width from stocked component parts.

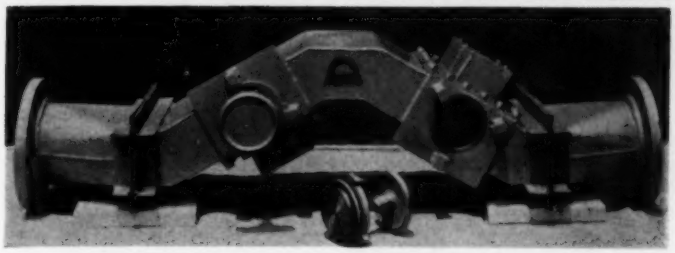
May-Fran belting utilizes individual steel links in pitch sizes of 2½, 4, 6 and 12 in. These links can be assembled to form belting of almost any length and in widths from 6 in. to 6 ft. to meet



individual requirements. Links can be perforated to permit passage of coolants, etc., or they can be solid. Working loads up to 300 lbs. per lineal foot can be handled with ample safety factor, according to the May-Fran Company.



A 600-cu. ft. compressor is the latest addition to the line of Schramm, Inc., West Chester, Pa. This model can operate large wagon drills, rotary drills, and other large pneumatic machinery. A 6-cylinder diesel engine drives the compressor.



● Iron Separator for Liquids

Damage to pumps, grinders, and other machinery from tramp iron in liquids and slurries reportedly can be prevented by the use of a new pressure-tight, non-electric magnetic separator now available from the Eriez Manufacturing Company, Erie, Pa. (See illustration above.)

The Eriez "Pressure Hump" directs the liquid by means of baffles so that two magnetic plates on opposite sides can eliminate any stray iron. The Pressure Hump is available for pipelines from 6 to 20 in. in diameter and volumes from 50 c.f.m. to 250 c.f.m., depending on consistency. Pressures to 45 p.s.i. may be safely used, according to company statements.

● All-Service Hose

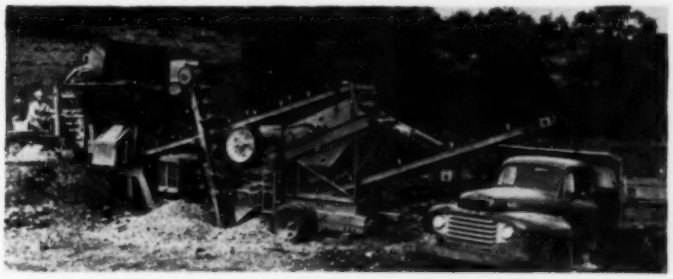
"Servall," an all-purpose hose, a product of the Hewitt Rubber Division of Hewitt-Robins, Inc., Buffalo 5, N. Y., is designed for general air service and small air tools, water service (hot or cold), intermittent gasoline and oil service, mild chemicals, and low-pressure spray service.

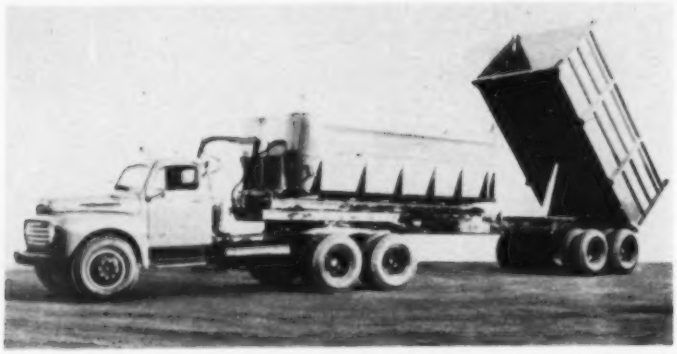
The hose is made of synthetic rubber with a carcass of braided, high-tenacity rayon. Several sizes are available, with single or double braid.

● Portable Gravel Plant

A gravel plant designed especially for "crush and travel" operations has been added by the Universal Engineering Corporation, Cedar Rapids, Ia., division of Pettibone-Mulliken Corporation. The new plant is designated as Model "CSE Traveler".

The plant consists of a jaw crusher, a shovel-loading hopper with reciprocating feeder and trap grate, a feed conveyor, a one-deck inclined gyrating screen, a delivery conveyor, a return bucket elevator, and a power unit mounted on a steel gooseneck truck with pneumatic tires. Four sizes are available. The plant operates as a closed circuit to produce accurately sized material for road building and maintenance, especially in out-of-the-way operations.

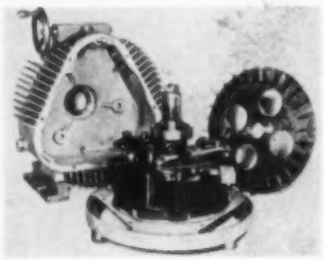




A unique transfer-type semi-trailer is announced by Cook Brothers, Los Angeles 31, Calif. The device consists of a long body divided into two sections. The rear section is dumped by a telescopic hoist, and the front section is then transferred into the rear section and dumped. This is claimed to give a larger load of lightweight pumice or aggregate. All operations are controlled from the cab and are hydraulically operated.

● Variable Speed Gear

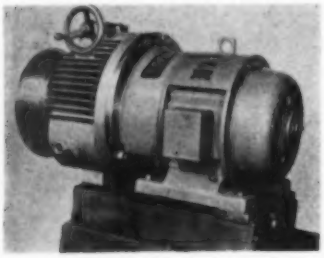
Infinitely variable speeds are possible with a new speed gear developed in England and being introduced by the Beier Infinitely Variable Gear Company, Ltd.,



19 Ebury Street, London S.W.1., England.

The new gear employes flattened conical discs which intermesh with corresponding number of thin discs with flanged edges. The speed ratio is adjusted by varying the depth of engagement of the two kinds of discs.

As a constant oil film is maintained between the discs, they are said to be

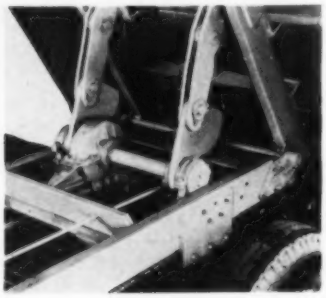


practically free from wear, and the torque is transmitted through the film at the points of contact. A small handwheel adjusts the discs to vary the speed on industrial models. Others are self-adjusting in proportion to torque-resistance and to speed. The system is compact, the required power rating being obtained by using a suitable number of discs.

● Mechanical Body Hoist

Truck bodies reportedly can be hoisted and dumped in any weather without difficulty by the new "Dube" mechanical hoist manufactured by the Detroit Mechanical Hoist Corporation, 3502 West Ford Street, Detroit 16, Mich.

Among the special features listed are positive power-up and power-down; no



slippage at any angle; and positive action from the truck motor through a power take-off, speed reducer, and worm-and-gear set. Models are available for all sizes of trucks.

● Reconditioning Aids

Worn buckets and crusher and hammermill parts can be restored by the use of "Manganal" steel products, according to information from the Stulz-Sickles Company, 134 Lafayette street, Newark 5, N. J.

The material is a manganese-nickel, special-analysis steel that is available in flat, round, and square applicator bars, wedge bars and hot-rolled plates. It polishes under abrasion and work-hardens to about 550 Brinell. Special welding electrodes add to the ease of application and supplement the Manganal in certain uses. The shapes and sizes available aid in the rapid repair of many parts of heavy machinery.

● Non-Consumable Electrode

Thoriated tungsten, used in electronic tubes because of its excellent electron emission characteristics, is now available as a non-consumable electrode, "Thor-Tung", for heliwelding, Air Reduction Company's inert-gas-shielded arc welding process.

It is said that tests have shown that Airco Thor-Tung operates much cooler than standard tungsten electrodes, permitting the use of higher currents on given size electrodes. Further, Thor-Tung has excellent arc stability at high or low currents, according to company officials. Air Reduction Co., 60 E. 42nd Street, New York 17, N. Y.

● 30-Cu. Ft. Air Compressor

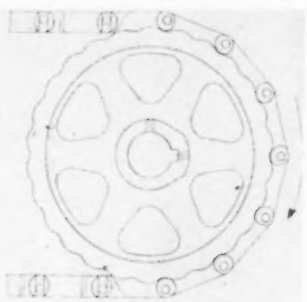
A new two-stage, air-cooled, 30-cu. ft. compressor is announced by Worthington Pump and Machinery Corporation, Holyoke, Mass. The compressor has a maximum operating pressure of 150 lbs. It is equipped with an A.S.M.E. air receiver, oil bath air cleaners, and a protective V-belt guard.

Other features include circumferential cooling fins; tube and fin-type air-cooled intercooler; positive by-pass unloader holds inlet valve open during idling period; Worthington "Feather" valve; separate, close-grained, cast-iron honed cylinders; full floating wrist pins; oil dippers for controlled lubrication; aluminum low-pressure piston and cast-iron, high-pressure piston of equal weight for proper balance.

● Elevator Traction Wheel

Beaumont Birch Company, 1505 Race st., Philadelphia, 2, Pa., is making a drive for use on chain bucket elevators which combines several distinct advantages, according to the company.

The new "Trac-Pull" drive wheel is



made with corrugations on the rim instead of a smooth rim or sprocket teeth. This design reportedly prevents slipping and eliminates jamming of the chain. Chains may also be replaced without changing the wheel, as it is not affected by elongation and variation of chain pitch. The wheel is cast of "Beaucalloy," a wear-resistant steel.

It's "SCRAM" to Clay!

EAGLE WASHERS

"clean up" 250 Tons of Sand And Gravel Per Hour!

Torrance Sand & Gravel Co. is undaunted by clay in their sand and gravel deposit. Their modern plant produces over 250 tons of material per hour — material that meets rigid specifications. A 42" X 25' Eagle (1) Single Screw Fine Material Unit with Long Weir flared tub and 36" dia. screw flights launders sand, loosening clay and washing it away. A 29" X 18' Eagle Single Screw Coarse Material Unit with 20" dia. screw flights (2) washes gravel from the upper deck of the screen, leaving no stone unturned to turn out clean aggregates. Despite the fact that 2,500 g. p. m. of wash water is used, material is delivered free of excess moisture. The Eagle screws, tub design and bottom water inlets combine to separate extraneous matter from sand and gravel. Get the complete facts TODAY.

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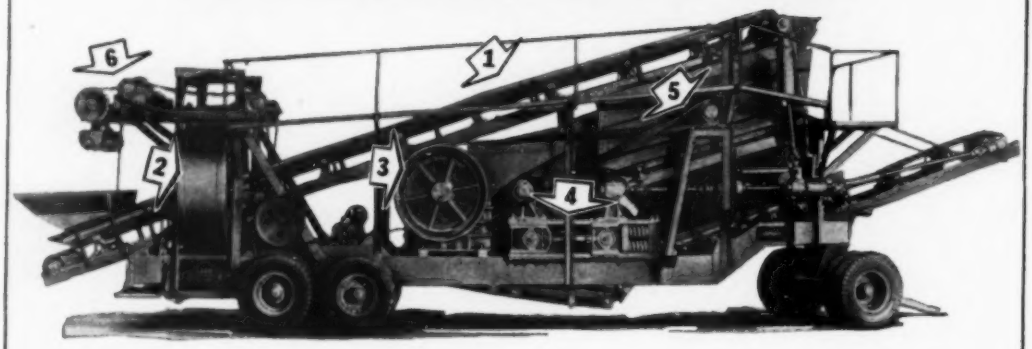
SEND SAMPLE OF YOUR MATERIAL FOR A REPORT.

Ship a bag, box or barrel of your sand or gravel. Our engineers will make a study of it without obligation and submit recommendations. Ask for shipping instructions.

6 reasons..



Why DIAMOND "95" *Portable* ROTOR-LIFT QUARRY PLANT

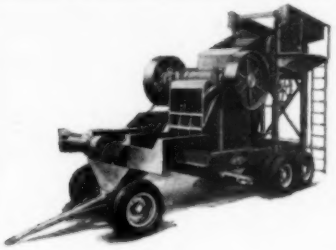
Produces . . . More Aggregate . . . With Less Down Time . . . AT LOWER COST . . . *

1. "Line-Flo"—straight line principle of flow—without extra scalpers means more material—faster—at less cost.
2. Rotor-Lift design transfers material from under-crusher conveyor to feed conveyor which returns it to screen for rescreening. Material is spread evenly on feed conveyor—without batching or bunching—eliminating screen overload.
3. "Double Impact" Primary Jaw Crusher delivers greater tonnage of crushed material per square foot of jaw area—to screens and conveyors.
4. Diamond's Secondary Roll Crusher steps up plant output by eliminating reruns through primary jaw crusher.
5. Diamond's *Balanced* Vibrating Screen with longitudinal center and center of balance on same line gives even distribution of material over screen surface.
6. Swivel Drive delivers power to swivel field conveyor—permits loading from large pit area without moving plant.

*Up to Approximately 200 Cubic Yards Per Hour Basing Capacity on 25 Per Cent Oversize Material Passing a 1" Screen.

Diamond's "95" Rotor-Lift Plant Gives . . .

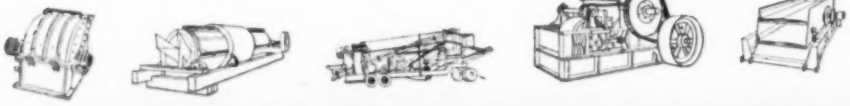
Higher Capacity • More Uniform Crushing • Uninterrupted Flow of Material • Higher Production • Lower Cost Per Ton



Diamond Portable Primary Crushing Plants handle primary breaking of extra large rock for feeding to crushing and screening operations that follow. Portable Primary Plants include fine standard sizes with 15 x 24, 15 x 36, 20 x 36, 24 x 36, and 30 x 42 Jaw Crushers.

Your area Diamond Representative will give you the complete "Line-Flo" story . . . the straight line flow design which gives greater production of uniform aggregate at a lower cost per ton.

Ask for Bulletin D-48-A.



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NO-TURN shuttle haul..

Dumptors®

SAVE TURN TIME GAIN HAUL TIME

On every haul cycle, Koehring fast-shuttling Dumptors eliminate slow turns — at the loading unit, at the dumping point, on sharp, "zig-zag" grades. They gain *more* productive haul time, because Koehring constant-mesh transmission gives the same 3 fast speeds forward and reverse. Here's how much no-turn shuttle operation can increase your production:

By eliminating only 2 turns on a 1,000′ haul, time studies prove that Dumptors can save 30 seconds every round trip, and increase hourly yardage output over 10% per unit. What's more — fast, easy spotting and 1-second gravity dump keep production high.

Remember, too — top hauling efficiency also means increased shovel output. For *double profit protection*, team fast-shuttling Dumptors with Koehring heavy-duty excavators. Four sizes: ½-yd., ¾-yd., 1½-yd., and 2½-yd.

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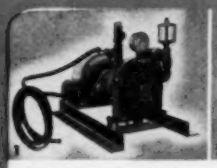
IN OPEN PITS OR • UNDERGROUND

In confined underground operation, Dumptor spots fast, close to shovel . . . no need to turn. Shovel operator has short swing cycle, a big, easy-to-hit 8' x 8' target, for loading Dumptor over either end or sides.

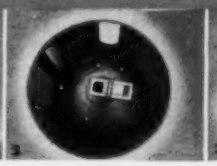
At dump there's no slow jockeying around. Dumptor drives up, body forward; operator hits body release lever; gravity instantly dumps the 6-yd. payload in 1 second . . . Dumptor heads back without turning.

On no-turn shuttle haul, from underground to surface, loaded Dumptor leaves narrow tunnel in same position as it entered . . . travels same speeds forward and reverse . . . easily climbs 24% grades fully loaded.

INCREASE BATCH PLANT PROFITS *with Johnson accessories*



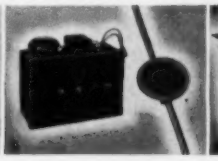
Rotary Vane Compressor gives 7 cu. ft. air pressure per min. cement aeration. 15-lb.-limit relief valve.



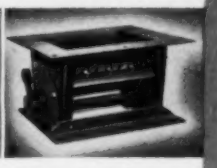
Aeration Fittings properly spaced in Johnson bins and silos keep cement free flowing.

2-Way Elevator Discharge Valve, a flop-type chute, directs flow of cement to the storage tank.

Pivoted Distributer feeds aggregates to bin sections. Positions and locks by ground control wheel.

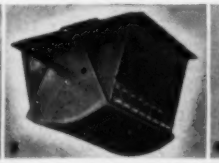


Bin Signals accurately register high and low levels in cement or aggregate. Dust-proof.



Rotary Plug Valve accurately controls cement flow. Plug operates freely in self-aligning bearings.

Receiving Hopper 30 and 50-bbl. sizes, feeds bulk cement to elevator. All-welded, weather-proof.



Aggregate Fill Valves single clam, radial type for jam-proof closing. Hydraulic pressure lubrication.

Tunnel Gate for stockpile reclamation. Single radial clam. Hinged spout opens, locks securely.

Safety Cage of 28" steel, welded to casing, can be furnished with all Johnson elevators.

Water Weigh Batchers, semi- or full-automatic types. 120 and 240-gal. sizes available.

Elevator Buckets in many sizes for aggregates, and cement. **Steel Chain** has carburized knuckles.

Batcher Test Weights in sets of ten, 50-lb. calibrated units, for checking batcher accuracy.

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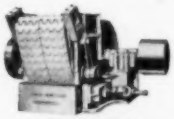
HAMMERMILLS

Reversible and Non-Reversible types. Manufactured in many sizes.

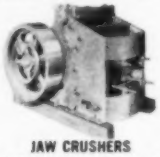


DIXIE NON-CLOG

Patented Non-Clog Moving Breaker Plate eliminates troubles when crushing wet or sticky materials.

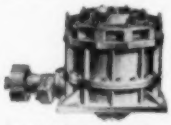
SINGLE ROLL CRUSHERS

For primary and secondary reduction. Wide range of capacities.



JAW CRUSHERS

KUE-KEN Crushers that employ the principle of "crushing without rubbing."



GYRACONE CRUSHERS

KUE-KEN Gyracone Crushers also employ "crushing without rubbing" principle.

Every crushing problem differs in one or more of its principal factors and no one type of crusher can meet all of them. For this reason the Pennsylvania-Dixie line is large and varied. Pennsylvania is not compelled to rely on one or two types of crushers, which assures you that our recommendation will be the most efficient and economical for your requirements.

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PENNSYLVANIA CRUSHER COMPANY

DIXIE

JOIN FORCES!

More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. Best Thing in the World for Rebuilding and Repairing Worn Buckets. Vest-pocket folder describing Manganal (manganese-nickel steel) and listing its uses and characteristics. A keyed drawing shows the parts of a bucket subject to wear and how they can be repaired with Manganal. Stulz-Sickles Co.

2. Sturtevant Rotary Crushers. (Bulletin 063) Four-page folder presenting the uses, characteristics, and specifications of these crushers. Included is a list of materials which can be reduced in the crushers. Illustrations show the exterior, a cutaway view, and an "action" picture of the crusher at work. Sturtevant Mill Co.

3. Spa-Fla Safety-Shield Portable Protection and Ray-Foil. The first folder pictures and describes Spa-Fla, a fire-resistant and weather-proof canvas shield, and lists possible uses. Includes a price list. Second folder presents the uses of Ray-Foil, a protective material with an aluminum foil surface. Suggests uses and lists prices. Frommelt Industries.

4. Isaacson Tractor Equipment Built by Pullman-Standard. An illustrated booklet telling the full story of the recent business transaction by which Pullman-Standard acquired the tractor allied equipment business of the Isaacson Iron Works at Rockford, Ill., and explains how the "combine" will afford coordination with International Harvester's two Chicago tractor plants. Road Equipment Division, Pullman-Standard Car Mfg. Co.

5. How to Get Better Concrete Products At Lower Cost. A 14-page booklet explaining the use of Solvay Calcium Chloride in tamped and vibrated products, poured and cast products, and the manufacture of concrete products. Contains answers to questions most commonly asked about the integral use of calcium chloride with portland cement mixes. Solvay Sales of Allied Chemical and Dye Corp.

6. Gulf Industrial Lubricants. Three folders describing the protective non-foaming quality of Gulf E. P. lubricants, the rust preventive qualities of Gulf oil-film and petrolatum type lubricants, and the use of Gulf mechanism oil in operating telemotor hydraulic units. Gulf Industrial Lubrication.

7. Lister-Blackstone Air-Cooled Diesel Engines. Four notebook sheets listing the specification, engine date, and prices of two Lister-Blackstone air-cooled diesel engines. (8- and 12-hp.) Picture various uses and installations of engines. Drawings give labels and dimensions. Performance chart included. Lister-Blackstone, Inc.

8. Super-Trough Conveyor for Handling Wet Cement. Folder picturing the super-trough conveyor Model W. C. and listing specifications. Considerable details given for portable conveyor. Conveyor Engineering & Supplies Corp.

9. Stop Dust. Folder explains the use of Compound M-200 in liquid diffusion method of dust control in rock-crushing, slag, and clay plants. Lists equipment needed and tells of additional uses of compound. Johnson March.

10. Thermoid Transmission Belting. Booklet containing information needed to select proper Thermoid transmission belt for any job. Explains general construction features of belts, pictures and explains different belt materials. Chart gives hp. capacity versus belt speed. Tables list formulas and specifications helpful in solving belting problems. Thermoid Company.

11. Thermoid Industrial Friction Materials. Catalog listing type, quantity, drum diameter, size, and number of pieces per band or clutch of most industrial machines using industrial friction materials. Contains information on brake linings, clutch and disc facings, and cutting cones, also selection charts, and definitions of Thermoid friction materials. Thermoid Co.

12. Linde Oxy-Acetylene Production, Construction, Maintenance. Booklet picturing Linde products used in cutting, joining, forming, treating metals. List of literature available and district offices. Linde Air Products.

13. Vari-Pitch Automatic Sheaves. Eight-page notebook insert explains operation and construction of Texrope belts and Magic-Grip sheaves as used in Allis Chalmers Automatic Vari-Pitch sheaves. Tables simplify selection of proper equipment. Allis-Chalmers Mfg. Co.

14. Acker Drill Co., Inc. (Bulletin 33) Condensed bulletin picturing and describing complete line of Acker drilling equipment as developed by George H. Gibson Company. Equipment for subsurface exploration and coal and mineral prospecting. List distributors. Acker Drill Co., Inc.

15. HD-9 and HD-15. Two catalogs describing new Allis-Chalmers tractors. Illustrate GM diesel power, power train, frame, track design, operation, and maintenance. Data on allied equipment and special accessories also included. Allis-Chalmers.

16. Brooks Oil Company. A 24-page brochure tracing the history and listing technical data concerning Brooks Leadolene, Klingfast, and Roll Oil F lubricants. Case histories compare these lead-base lubricants with other products. Brooks Oil Company.

17. Fairfield Conveyors For The Construction Field. (Bulletin No. 450) Folder pictures and describes four belt conveyors and a car unloader sold and serviced by the Fairfield Engineering Company. Portable conveyors range from lightweight non-powered to heavy-duty power-moved. Fairfield Engineering.

Use This Card—Mail Today

February, 1951

PIT AND QUARRY:

Please send more information on items circled.

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
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26.	27.	28.	29.	30.
31.	32.	33.	34.	35.
36.	37.	38.	39.	40.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

More Information, Please

18. Don't Buy Trouble. (Form No. 30041) A 16-page booklet describing oil filters, their purposes, their make-up, and the qualities to look for in a filter. Explains why a filter is not an oil refinery; tells of tests made on various filters. Caterpillar Tractor Co.

19. Dependable Through 38 Years. Explains the benefits, list the seven sizes, and describes Cleveland Worm Gear Speed Reducers. Lists field offices. Cleveland Worm and Gear Co.

20. Catalog of All-Welded Clamshell Buckets. Describes three types of all-welded clamshell buckets made my C. S. Johnson. Sizes range from ⅜ to 2½ cu. yd. Explains advantages of all-welded construction. Lists specifications and construction details. Johnson Company.

21. Alloy Castings For Rock Products Industries. Description of some castings for kiln feed pipes, retaining ring castings, nose-ring castings, and other castings useful where heat and wear are considerable. Castings are tailored to fit individual needs. Babcock & Wilcox.

22. The Champion. Folder listing features and specifications of 3-cu. yd. lightweight truck-mounted concrete mixers. Double-page illustration allows easy examination and comparison. Concrete Equipment Mfg. Co.

23. The ABC of "Packaged" Generators. Sixteen-page booklet suggesting why a "packaged" generator can do a better job for you. Helpful electrical information for the selection and application of "packaged" generators. Explanation of constant voltage provisions. Electric Machinery Mfg. Co.

24. Auger-Matic Push Button Bag Packer. Illustrated pamphlet presenting features, low-cost installation, and economical operation of Auger-Matic Push Button Bag Packer. E. D. Coddington Mfg. Co.

25. Earth Moving and Construction Machinery Lubrication. Second edition of a clearly-written and detailed manual explaining the role, uses, and limitations of various lubricants; elements requiring lubrication; parts and units of industrial machines from pneumatic tools to road-building machines; and lubricants recommended for various earth moving and construction machinery. Cities Service.

26. Specification Sheets. These cover 9 Gould-National batteries for "walkie" truck power-supply. Give details on dimensions, capacity, type, and weight; also recommends batteries for light- to heavy-duty uses. Layouts and tables show battery arrangements and construction. Gould-National Batteries, Inc.

27. Bulletin 187. Design data on all types of machinery manufactured by Nordberg. Explains various industrial applications. Description of company's manufacturing facilities. Nordberg Mfg. Co.

28. Eriez Magnetic Pipeline Trap. (Bulletin 202) Two-page bulletin describing installation of magnetic trap to remove tramp iron from pipelines carrying liquids and semi-liquids. Specifications and advantages of alnico trap. Eriez Mfg. Co.

29. Engine-Mounted Root-Rippers, Bulldozers, Grade-Builders. (Bulletin 894) Description of new engine-mounted, hydraulic earth-movers for attachment to Allis-Chalmer crawler tractors. Complete explanation of new features and specifications; also action shots. Baker Mfg. Co.

30. Fly Ash Elimination. Thirty-two-page booklet explaining the successful and economical separation and elimination of fly ash from boiler flue gases through use of Multiclone mechanical separators. Tables show operating efficiency and size needed. Western Precipitation Corp.

31. Cottrell Electrical Precipitators. Separation, removal, and recovery of solid or liquid matter from industrial gases through use of Cottrell Electrical Precipitators. Various types, applications, and specifications shown. Western Precipitation Corp.

32. Neptune Meters. (Bulletin 562) Folder explains how Auto-Stop water meters accurately control the amount of water delivered to ready-mix concrete batches. Specifications and prices for 1-, 1½-, and 2-in. meters for cold, warm, or hot water. Neptune Meter Co.

33. The AFBDA Bearing Maintenance Report. A continuing study of bearing maintenance technique, installation and removal procedure published in pamphlet form by The AFBDA. All available maintenance information on every type bearing presented. The Anti-Friction Bearing Distributors Assn.

34. Model FD Rear-Dump Euclid. Eight-page catalog describing models 80FD and 82FE Euclid rear-dumps. Presents various features of off-highway hauling units, available with 165- or 190-hp. diesel engines. Euclid Road Machinery Co.

35. Bailey Feed Water Control. (Bulletin 105-C) Latest developments in Bailey Three-Element Feed Water Control described. Includes discussions of problems and solutions in feed water control. Diagrams, cutaway views, chart records, and photographs shown. Bailey Meter Company.

36. Meaning of Lubrication to Industrial Management. Booklet defining lubricant's job viewed as an industrial problem. Advocates application of right lubricant, in right quantity, at right time. Lincoln Engineering Co.

37. Industrial Dust Control. Fifty-page book treating exhaust hoods and piping systems, dust collecting equipment, and exhausters and drives. Liberally illustrated; includes problem sheet which reader can use to get data on own particular case. Pangborn Corp.

38. Lubriplate. (No. 1-50) Complete description, cataloging, and dealer listing for the various Lubriplate products. Fifty-four pages of information, recommendations, and specifications. Fiske Bros. Refining Co.

39. Keystone Steam Generators. Descriptive folder on Keystone two-drum, water-tube boiler. Contains large illustrations and charts, plus detailed specifications and capacities. Erie City Iron Works.

40. Handling Materials Illustrated. (Vol. 9, No. 1) Contains illustrated articles explaining such subjects as "Cost Cutting in Car Unloading", "Mass Handling with Smooth Production Flow", etc. Free safety kit offer. Towmotor Corp.

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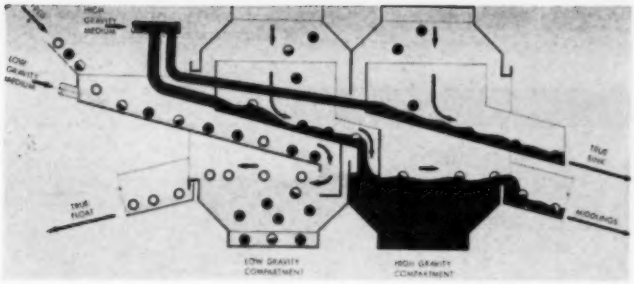


● Drum Separator

A new drum separator, designed to reduce the cost of multiple stage heavy-media separation, has been announced by the Western Machinery Company, 760 Folsom St., San Francisco, Calif. Because it greatly reduces the equipment needed to produce a middling product, this multiple drum separator is expected to have wide application in the cleaning of low-grade ores and minerals.

In order efficiently to obtain a middling product in the heavy-media separation process, two stages are required using heavy-media liquids of different gravities. A float product is produced on the lighter gravity media, a sink product in the heavier media, and a middling product between them. Heretofore, this has been accomplished only by using two separate drums or cones, together with necessary screens, ductwork, and attendant equipment. This is nearly equivalent to two complete heavy-media systems, and has made two-stage separation economically unfeasible in many instances.

It is claimed that the new Wemco process reduces the complexity of two-stage separation by using a partitioned drum with a lighter media in one section and a heavier media in the other. Only three conveyor systems leave the drum; they carry a true mineral product, a true waste product, and a middling product. Recrushed portions of the middling product join the feed material and are returned to the drum.

● Cold Rubber Belts

The much-publicized "cold" rubber is now being used in some conveyor and elevator belts manufactured by the B. F. Goodrich Company, Akron, O.

This rubber is made at 41 deg. F. instead of by the faster process that employs 122 deg. F. It has been widely written up as a means of increasing tread wear in automotive tires. It is claimed to have great abrasion resistance, making it excellent for use in certain flat belt services where it may add from 10 to 25 percent more wear.

● Low-Hydrogen Electrodes

A new line of P&H low-hydrogen electrodes is now being produced by Harnischfeger Corporation, 4400 W. National Ave., Milwaukee 14, Wis. The new series of 14 different types covers all welding applications where low-hydrogen electrodes are desirable.

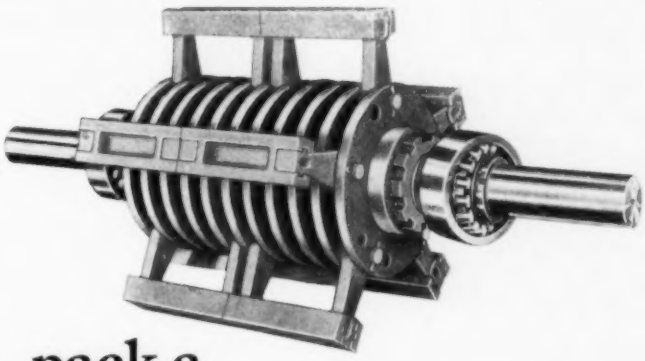
These new P&H electrodes are said to produce excellent welds on problem and alloy steels, including steel castings. They have a moderate penetrating arc with an easily removable slag.

● Arc Welder

The Lincoln Electric Company, Cleveland 1, O., presents the "Fleetwelder," an a.-c. welder with a 200-amp. rating at 30 volts. Working current ranges from 30 to 250 amps. The open circuit current is 62 volts.

The Fleetwelder will handle 5/64 to ¼ in. electrodes. An "arc-booster" gives a burst of current to start the arc and gives full penetration immediately. Models are designed to be connected to single-phase, 60-cycle, 220, 440, or 550 volts.

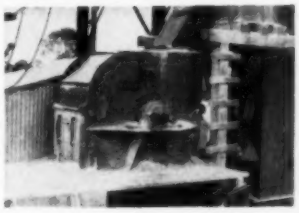
The company claims that this welder gives higher quality welds because of better starting penetration; it eliminates electrode sticking, saves power, handles a wide range of work, and is safe.



...pack a

real wallop!

The fast flying hammers—from 65 to 100 miles per hour—on this Eagle Hammermill make quick work of all stone that gets in their way. Special design of these high manganese hammers makes them reversible and replaceable. That goes for other wear parts, too, on this mill. It's another reason why Eagle owners are happy with their choice. The Model 36-42 mill which uses this rotor assembly produces material ranging from dust to 3" stone at a rate of 100 to 250 tons per hour. They pack a real wallop at production costs, too!



In many cases the Model 36-42 (illustrated here) does the work of both primary and secondary crushers. Here it is doing yeoman work at one of the largest aglime plants in Ohio. Producers are well pleased with quality of cubical output.

Send for complete specifications, Folder 251

EAGLE

JAW CRUSHERS • IMPACT BREAKERS
PULVERIZERS • CONVEYORS • LOADERS

CRUSHER CO., Inc. GALION OHIO·U·S·A

trade notes

The retirement of Frank J. Danner, general traffic manager of Chase Bag Company for more than 25 years, has been announced from the Chase General Sales Office in Chicago. Mr. Danner is one of the country's most prominent industrial traffic executives. His successor will be A. P. Ellerbrock, assistant to Mr. Danner during his entire period with the Chase company.

John W. Belanger of Schenectady, N. Y., and Nicholas M. DuChemin of Lynn Field, Mass., have been named general managers of the Large Apparatus Divisions and Small Apparatus Divisions, respectively, of the General Electric Company's Apparatus Department, according to Ralph J. Cordiner, company president.

Both in their new capacities will be responsible to Henry V. Erben, G-E vice-president. Formerly, they were assistant general managers of the department.

The opening of new branch offices at Denver, Colo., and at Houston, Tex., was announced by Richard F. Straw, vice-president in charge of sales, The Howe Scale Company, Rutland, Vt.

The Denver office is located at 2524 Walnut Street and is managed by Daniel O. Ferris. The Houston office is located at 2215 McKinney Avenue and is managed by Henry K. Leonard.

Boyd Daugherty, for many years head of the Bemis Bro. Bag Co. sales office in New York, died December 30, 1950, at Port Washington, Long Island, N. Y.

Mr. Daugherty resigned in March, 1945, because of ill health and spent the last five years in retirement at his home in Port Washington. He joined Bemis in 1913 as a salesman in Chicago and in 1914 transferred to New York. He became head of the New York sales office in 1926.

At a meeting of the Board of Directors W. R. Persons was elected vice-president in charge of sales of The Lincoln Electric Company. He has been general sales manager since 1946. Mr. Persons joined Lincoln in 1934.

The S. K. Wellman Company, Cleveland, O., will build a $600,000 plant on Egbert Road in that city, it was announced by S. K. Wellman, president, who stated that his firm had acquired options to purchase approximately 83 acres of land.

The new plant will be a one-story structure of 60,000 square feet with approximately 90 percent of the area devoted to manufacturing. The plant will have a railroad siding, and when completed, will permit the company's present production of friction linings to be doubled.

R. J. Russell

Robert J. Russell has been appointed sales manager of Hardinge Company, Inc., according to an announcement made by Harlowe Hardinge, president. Mr. Russell is also secretary of the company. He was previously chief of the technical staff. Mr. Russell joined Hardinge in 1929 as a service engineer. He has become an authority on the subject of design and application of continuous drying equipment.

A $1,500,000 expansion of plant and manufacturing facilities for Quaker Rubber Corporation, Philadelphia, Pa., a division of H. K. Porter Company, Inc., was announced by T. M. Evans, president.

The expansion plan will increase the finished rubber products capacity of the plant by 30 percent. Centered around a new compounding and mixing building, the program includes a new administration building and a new $300,000 72-in., double-deck, conveyor belt press.

Election of three new vice-presidents of the Fruehauf Trailer Company was announced by Roy Fruehauf, president. E. S. Quarngesser, Baltimore, Md., was named vice-president in charge of the Eastern Sales Division; W. W. Siegrist, Detroit, was named vice-president in charge of truck body division; Harry R. Badger, Detroit, became vice-president in charge of scheduling.

Arthur W. Dale, 53, general manager of sales of the Mining Division of Gardner-Denver Company, died unexpectedly on December 18, 1950, in his office at the company's plant in Quincy, Ill.

Mr. Dale had been associated with Gardner-Denver Company since 1916. He first worked in the Denver plant of the company. For a period of five years he was director of South African operations, with headquarters in Johannesburg. He was called to Quincy in 1944 to take over the duties of the manager of mining sales.

Robert K. Spofford has been named director of purchases for John A. Roebling's Sons Company, Trenton, N. J. In his new position Mr. Spofford will be in charge of the procurement of materials used in the manufacture of wire rope, electrical wire and cable, woven wire fabrics, cold-rolled steel and related products.

To provide increased service for its expanding Canadian business, Gardner-Denver Company, manufacturer of rock drills, air compressors, pumps and equipment for mining, contracting, oil field and industrial purposes, is establishing a Canadian plant.

The new plant will be located at Brantford, Ont., and will be operated by Gardner-Denver Company, Canada Ltd. Key production men will be temporarily transferred from the parent plant, Quincy, Ill., to provide the necessary initial supervision, but both skilled and unskilled labor will be obtained in Canada.

Production of the new plant will be handled through the seven branch offices which the Gardner-Denver Company maintains in Canada.

B. V. Jones

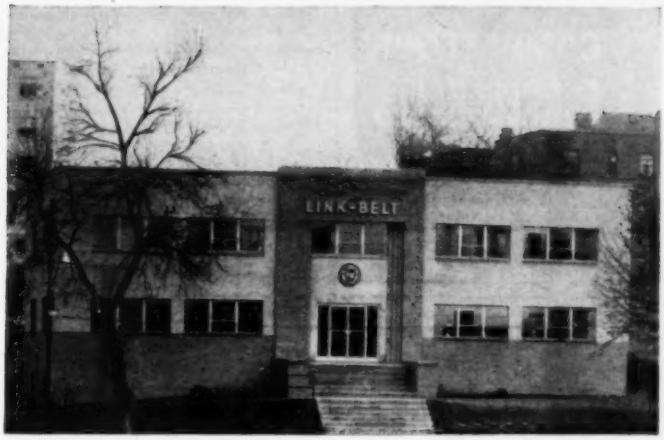
Link-Belt Company, manufacturer of materials handling and power transmission equipment, has appointed Bertram V. Jones advertising manager, to succeed Julius S. Holl, deceased. John F. Kelly will continue in the capacity of assistant advertising manager.

Mr. Jones joined the Link-Belt advertising department in Chicago in January, 1923, after having done advertising work for several other companies.

George W. Vaught, financial vice-president of The B. F. Goodrich Company, retired on December 31, 1950.

When he joined the company more than ten years ago, it was Mr. Vaught's intention to retire to his ranch in Texas at the end of five years of active service. At the request of President Collyer and the board of directors he agreed to continue his responsibilities an additional five years.

Stuart E. Yeaton, general product manager, Electrical Wire Division of John A. Roebling's Sons Company, Trenton, N. J., announced the appointment of three new sales executives. Howard E. Maloney was made manager of sales. He was formerly assistant manager of sales. Frank T. Craven, formerly in charge of sales of coils, magnet wire, and bare and weatherproof products, was appointed assistant manager of sales. Roy H. Hainsworth became Eastern regional manager, with headquarters in Trenton.



• Link-Belt Company has constructed and is now operating this new factory branch store located at 5020 Centre Ave., Pittsburgh 13, Pa. This new building provides ample space for stocking Link-Belt power transmission and materials-handling products and serves as headquarters for the increased Pittsburgh personnel.

Emil R. Schaeffer has been appointed manager of manufacturing of the General Electric Company's Switchgear Divisions at Philadelphia, Pa., according to an announcement by R. F. Tinnerholm, manager of the divisions.

J. E. Petersen

Link-Belt Company announces that its wholly-owned South African subsidiary, Link-Belt Africa Limited, has purchased a 12,000-sq. ft. manufacturing plant, with separate office building, on a 12-acre plot in Springs, Transvaal, about 28 miles east of Johannesburg, for the purpose of manufacturing conveyor machinery and other Link-Belt products commonly used in South Africa.

John E. Petersen has been appointed managing director of the South African company. Mr. Petersen was formerly divisional engineer at the company's Pershing Road plant in Chicago.

Gene Zwerner, heretofore Link-Belt district sales engineer at Detroit, has been appointed sales manager of Link-Belt Africa Limited. A. L. Endroll, who last served as district sales manager at the company's Atlanta plant, is transferring to South Africa to supply additional manufacturing and engineering experience.

H. K. Porter Company, Inc., Pittsburgh, Pa., has acquired the Delta Star Electric Company of Chicago, Ill., manufacturers of high-voltage electrical equipment, it was announced by T. M. Evans, president.

The Delta Star Electric Company designs and manufactures a variety of fittings, switches, insulators, conductors, supports and related equipment for the control and transmission of electricity around central power stations, substations and transformers. No change in the operations or management of Delta Star Electric Company is contemplated, Mr. Evans stated.

General Brehon Somervell, president of Koppers Company, Inc., Pittsburgh, Pa., announced the appointment of three Chicagoans as divisional vice-presidents in the company's Engineering and Construction Division.

They are Gordon Fox, Harry Naismith, and W. B. Clemmitt, all of whom have been affiliated with Freyn Engineering Company, a wholly-owned subsidiary of Koppers, or Freyn's subsidiary, the Open Hearth Combustion Company.

Under action of the Koppers Board of Directors, Freyn will cease to be a company subsidiary and will become a department of Koppers Engineering and Construction Division. The Freyn Department will be under the direction of W. C. Snyder, Jr., vice-president and manager of the metallurgical department of the Engineering and Construction Division. The new Koppers department will continue to have offices in Chicago.

F. L. Yetter

The appointment of F. L. Yetter as senior vice-president of C. H. Wheeler Manufacturing Company, Philadelphia, Pa., has been announced. Mr. Yetter rejoins the company after a 20-month period during which he served as director of foreign affairs for the Kuljian Corporation.

David M. Ehrsam, president, announced the signing of a new union contract guaranteeing labor peace for The J. B. Ehrsam and Sons Manufacturing Company plant for a period of five years.

The contract with the International Molders and Foundry Workers Union of North America is tied to the cost of living. It is similar to the agreement now in effect between the United Automobile Workers and the General Motors Corporation.

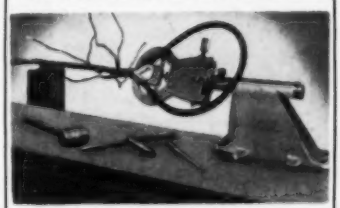
The company's 223 hourly paid production workers were given an immediate 15 cents-per-hour wage boost, retroactive to December 4. The contract binds both parties for five years. Negotiations may not be reopened unless both union and management agree to do so.

The election of Ralph J. Cordiner, as president of the General Electric Company to succeed Charles E. Wilson, named chairman of the new Defense Mobilization Board, was announced on December 16.

Mr. Cordiner, who has been associated with General Electric for 24 years and has served as manager of five of the company's departments during that period, has been executive vice-president and a director of the company since 1949. He assumed his new duties immediately.

Mr. Wilson completed 51 years of continuous service with General Electric in November. He started as a messenger boy with the Sprague Electric Company in 1899.

WIRE ROPE SPLICER



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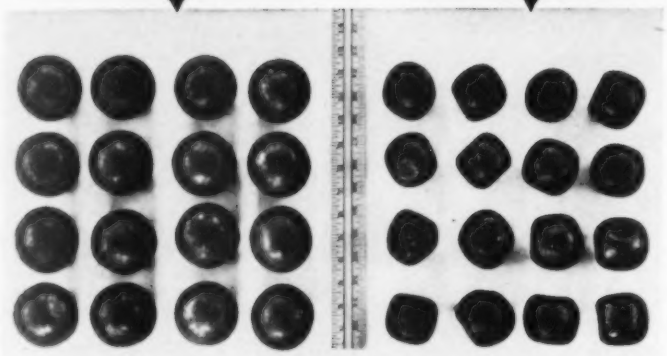
SHEFFIELD
MOLY-COP
COPPER-MOLYBDENUM-ALLOY
VS.
COMPETITIVE
FORGED BALLS



THERE *IS* A DIFFERENCE IN FORGED STEEL BALLS

Again, the longer wearing qualities of Sheffield Moly-Cop balls have been demonstrated. This time in a test grinding barite ore at Magnet Cove Barium Corp., Malvern, Ark.

An equal number of Moly-Cop and competitive forged steel balls were charged into the same mill at the same time and were recovered after 4604 operating hours. All were originally 3½ inch nominal diameter and marked for identification.

MOLY-COP COMPETITIVE BALL

The recovered test balls are shown in the top photograph. Clearly evident is the difference in rate of wear. The *competitive forged balls* wore *38% faster*, based on average diameter loss. Note also the pronounced difference in retention of spherical shape.

Typical fractures of the two types of test balls are shown in the lower photograph. Note the fine, hard, martensitic grain structure of the Moly-Cop ball.

Carbon and Alloy Steel
Ingots, Blooms, Billets, Plates,
Sheets, Hot Rolled Bars,
Steel Joists, Structural Shapes,
Reinforcing Bars,
Welded Wire Mesh,
Wire Products, Wire Rods,
Fence, Spring Wire,
Nails, Rivets,
Grinding Media, Forgings,
Track Spikes,
Bolt and Nut Products

The economy of Moly-Cop balls has been borne out in reports from all over the world. A comparative test in your own mills will demonstrate just how much more economical are Moly-Cop balls in your grinding operations.

SHEFFIELD STEEL CORPORATION
HOUSTON KANSAS CITY TULSA

Export Representative:
ARMCO INTERNATIONAL CORPORATION
MIDDLETOWN, OHIO

The Wellman Engineering Company of Cleveland, O., has purchased the property and business of the Anker-Holth Manufacturing Company of Port Huron, Mich., it was announced by A. E. Gibson, president of Wellman.

Anker-Holth manufactures a complete line of hydraulic and air-operated cylinders, chucks and collets, and air valves and accessories.

Anker-Holth will now become the Anker-Holth Division of the Wellman Engineering Company. The Division headquarters will remain in Port Huron, Mich. J. C. Hodge, executive vice-president of Wellman, will supervise the operation of this newly-acquired division.

Charles L. Hardy has been elected president of Joseph T. Ryerson & Son, Inc., succeeding Everett D. Graff, who will become chairman of the executive committee. Thomas Z. Hayward was elected vice-president in charge of sales. Both Mr. Hardy and Mr. Hayward were elected directors and members of the executive committee.

William S. Lowe was recently elected president of the A. P. Green Fire Brick Company, Mexico, Mo. He succeeds Robert S. Green, who resigned as president but will remain as a member of the board of directors. Mr. Green is currently doing research and development at Batelle Memorial Institute, Columbus, O.

E. J. Schwanhausser, executive vice-president of Worthington Pump and Machinery Corporation, Harrison, N. J., has announced that Worthington has acquired the land, buildings and equipment of National Transit Pump and Machine Company in Oil City, Pa., which is in process of dissolution.

It is expected that Worthington will take possession of the plant early in February and commence operations on or about that time. Parts and repair inventories of National Transit Pump company will be available from Worthington.

Gordon F. Friauf has been appointed general material supervisor of Allis-Chalmers Manufacturing Company, Milwaukee, Wis., according to an announcement by President Walter Geist. He succeeds Charles A. McCormack, who has retired after 55 years with the company.

Mr. Friauf joined Allis-Chalmers in 1925. His new duties include the handling of stock authorizations for all works in the company's general machinery and tractor divisions and the revaluations of factory and field inventories.

H. C. Ramsey, president of Worthington Pump and Machinery Corporation of Harrison, N. J., announced the acquisition of Wintroath Pumps Inc., of Alhambra, Calif., and stated that the Wintroath Company will operate as a wholly-owned subsidiary, continuing under present management with Boyd Kern remaining as president. Wintroath is one of the leading manufacturers of vertical turbine well pumps.

C. Russell Conklin, Eastern district manager for the Republic Rubber Division of Lee Rubber & Tire Corporation, will take over management of Republic's Philadelphia office, 22nd & Race Sts., Philadelphia, Pa.

Warren Ingersoll, who formerly was in charge of this office will now devote all his time to his duties as assistant to the president of the Lee Corporation. Mr. Ingersoll will be located at the corporation's main office in Conshohocken, Pa.

H. E. Shawver

The appointment of H. E. Shawver as manager of construction industry sales for Hewitt-Robins Incorporated has been announced.

Mr. Shawver recently completed 2½ years as superintendent of Flippen Materials Company, which, as one of the jointly-owned companies of the Bull Shoals Dam project, quarried the rock and transported it 7 miles via belt conveyor to the dam site. Before joining the Flippen Company Mr. Shawver served for two years in the South and Southwest as district manager for the Pioneer Engineering Works of Minneapolis.

He will maintain his office for sales of Rubber and Convevors Division products in Dallas, Tex.

R. L. Beveridge

Ray L. Beveridge has been appointed to the position of field engineer for the Republic Rubber Division, Lee Rubber & Tire Corp.

Mr. Beveridge will have headquarters at Republic's Philadelphia district office, where he will contact the industrial organizations of the Philadelphia area in the interest of Republic's line of industrial rubber belting, hose, and molded and extruded products.

Wilbur R. Leopold has been appointed assistant to vice-president T. Cruthers of Worthington Pump and Machinery Corporation, Harrison, N. J., and will function on public works projects, according to an announcement by W. H. Feldmann, vice-president in charge of sales. Mr. Leopold was formerly manager of Worthington's Detroit office.

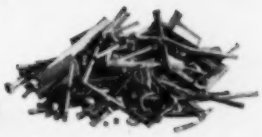
D. J. C. Copps, formerly manager of the Joplin district sales office and recently on special assignment in the Explosives Department of the Atlas Powder Company, was recently appointed Assistant General Manager for the firm.

REMOVE TRAMP IRON

WITH *Stearns*

SUSPENDED MAGNETS

LOWEST COST WAY



PROTECTION

SAVES MONEY!

Here's the economical way to protect crushers, grinders, pulverizers and other vital equipment — use a STEARNS Suspended Magnet over your conveyor belt or head pulley. This STEARNS Circular Suspended Magnet is one of two installed at the National Gypsum plant at Savannah, Ga., to remove all tramp iron before the rock enters the crushers.

You can protect your machinery and purify your product the low cost, positive way. Eliminate all tramp iron with STEARNS Suspended Magnets — this means fewer repair bills on crushing equipment, fewer shutdowns and higher production.

Whether you are handling rock, slag, coal or ore, investigate STEARNS Suspended Magnets; they're easy to install and have low operating and maintenance costs. Write today for descriptive literature on both circular and rectangular suspended magnets.

Complete laboratory and testing facilities available for separation tests on your materials.

STEARNS Circular Suspended Magnet for inclined installation over head pulley.

Rectangular Suspended Magnets available in sizes and shapes to meet your requirements.

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SYNTRON
Controlled "Vibration"

BIN VIBRATORS
Make Stubborn Materials Flow Freely

VIBRATORY FEEDERS
Up to Hundreds of Tons per Hour — Rheostat Control of Flo:.

VIBRATING GRIZZLIES
Both Feed and Scalp With One Unit

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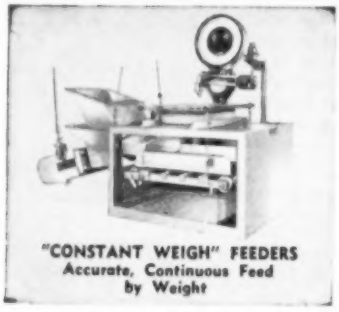
Wet or Dry — Single or Multiple Decks



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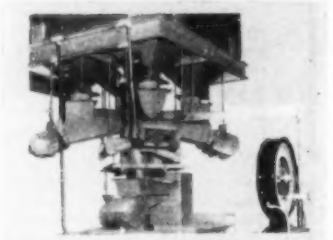
Accurate, Continuous Feed by Weight



"Automatic" BATCH WEIGHING
Scale—Controlled Vibratory Feeders

For Material Handling Efficiency

Free-flowing bins, hoppers and chutes—variable control of material flow, feeding from pounds to hundreds of tons per hour—coarse separation and scalping—weigh feeding and batching—of bulk materials, hot or cold, dry or damp, coarse or fine—add up to faster processing at lower costs.

Syntron Electromagnetic Vibration, without the use of wearing, mechanical parts such as spiral screws, cams, etc., assure cheaper operation and low maintenance.

Write for Descriptive Catalog No. 512

SYNTRON COMPANY
385 Carson Avenue Homer City, Penna.

Joseph V. Sullivan, chairman of the board of the Equipment Corporation of America, Chicago, died recently at the age of 57. Death occurred while he was vacationing at Sarasota, Fla.

Robert T. Keller has been named general manager of the new Delaward tank plant of the Chrysler Corporation. He was works manager of the Chrysler tank arsenal during World War II and recently president of the marine and industrial engine division. Mr. Keller has been with the firm since 1934.

Appointment of Edward Salner as manager of the precipitator department of the Metal Products Division, Koppers Company, Inc., was announced by Walter F. Perkins, vice-president and general manager of the Metal Products Division. Mr. Salner succeeds Frank H. Linthicum, who died on December 11, 1950.

Athey Products Corporation of Chicago announces two promotions within its sales organization. Tom Shea, district representative in the 13 northeastern

Tom Shea

A. T. Marchuk

states and eastern Canada, becomes general sales manager. A. T. Marchuk, assistant domestic sales manager, was promoted to domestic sales manager.

J. F. Davis, traffic manager of The Babcock & Wilcox Tube Company, Beaver Falls, Pa., has been elected to serve as a member of the Motor Transportation Advisory Committee for the Pittsburgh area. The committee will meet periodically to study motor freight transportation conditions and make suggestions for a more efficient use of motor carrier equipment through shipper-carrier cooperation.

Recently-appointed exclusive distributor and representative in South Dakota for the Koehring Company of Milwaukee, Sioux Road Equipment, Inc., of Sioux Falls, will handle the complete Koehring line of heavy-duty construction equipment. In addition to Koehring products, the firm also will represent the C. S. Johnson Company, Champaign, Ill., and the Parsons Company, Newton, Ia., both Koehring subsidiaries.

FRANK J. DANNER, general traffic manager of the Chase Bag Company, Chicago, has retired after more than 25 years with the general sales office of that company.

M. O. Stockland, director of sales division of The Four Wheel Drive Auto Company, Clintonville, Wis., announced the appointment of H. G. Engel, manager of FWD's western sales zone, as office sales manager and the appointment of V. M. Anderson, district sales supervisor in northern Illinois, to the vacated zone managership.

With the purchase of a large new modern factory with 120,000 sq. ft. of floor space in Maquoketa, Ia., Clinton Machine Company has more than tripled its capacity for manufacturing its Clinton engines. The plant is located on 17½ acres of land.

In making public the purchase, Don Thomas, president, announced two important appointments — Cahles B. O'Neill as executive vice-president in charge of production, and Charles W. Hamilton as sales manager.

In his new post, Mr. O'Neill will be in charge of all Clinton Machine Co. plants. Presently, however, he will concentrate on getting Clinton engines rolling off the assembly lines at Maquoketa.

The new sales manager, Mr. Hamilton, actually succeeds Don Thomas, who has directed sales in addition to being Clinton's president and chairman of the board.

The promotion of four members of the Manufacturing Department of Caterpillar Tractor Company, Peoria, Ill., has been announced.

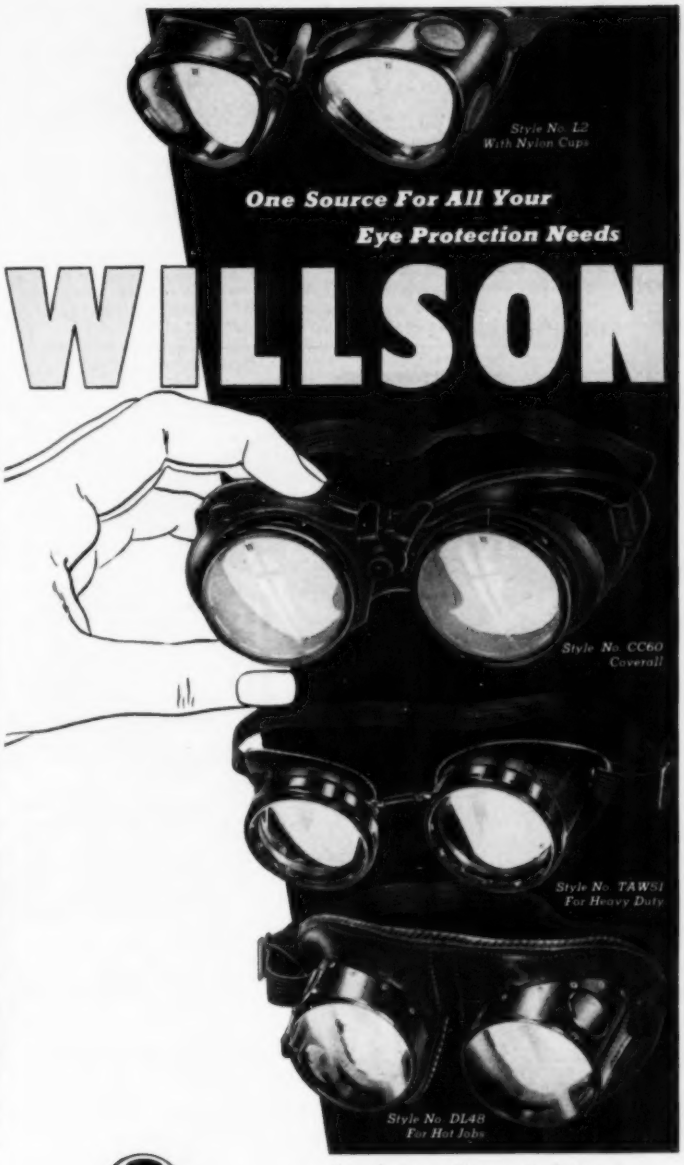
J. R. Munro, general factory manager, has been appointed to the position of director of manufacturing; C. A. Woodley has been named general factory manager and W. L. Naumann and Lloyd J. Ely have been appointed assistant general factory managers.

T. W. Brown

Tom W. Brown Jr. has recently been appointed southern sales manager of Arkell and Smiths. Mr. Brown had previously been the Texas divisional sales manager for the bag manufacturing company. He is moving his headquarters from Houston, Tex., to Mobile, Ala., where the company has a large new multiwall plant.

J. L. McDermott has been named district sales representative for Marion Power Shovel Company in eastern Missouri and southwestern Illinois. He will make his headquarters in the firm's St. Louis district office at 411 North 7th Street, Suite 713.

Hose Accessories Company of Philadelphia, Pa., announced the appointment of Arthur W. Gadd, 1805 Grand Avenue, Kansas City, Mo., as manufacturers' representative for the states of Missouri, Kansas, Nebraska, southern Illinois, and western Iowa.



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Dependable Products Since 1870
*T.M. Reg. U.S. Pat. Off.

Comfort • Size • Safety

For workers on heavy duty jobs; in hot or dusty work; exposed to chemical splash—any hazardous job—you can get what you need from WILLSON. Not only that, but every type has comfort features that help get safety equipment worn; and all have reliable WILLSON Super-Tough* lenses. For help in selecting exactly the right equipment for your needs, ask our nearest distributor for our new catalog—or write direct to WILLSON PRODUCTS, INC., 102 Thorn Street, Reading, Pa.

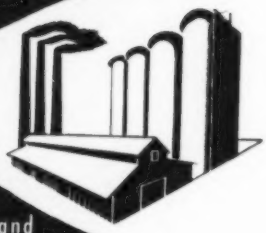
At the fourth annual protective packaging and materials-handling competition conducted by the Society of Industrial Packaging and Materials Handling Engineers at Philadelphia, Detroit Diesel Engine Division of General Motors took two first prizes in the six packaging classifications and "honorable mention" for the second-best inner pack in the show.

Recently appointed distributor for the Koehring Company of Milwaukee, the Tom W. Carpenter Equipment Co., Inc., Amarillo, Tex., will handle the complete Koehring line of heavy-duty construction equipment, along with products of three Koehring subsidiary companies — the C. S. Johnson, Kwik-Mix, and Parsons companies.

Covering the western portion of Texas, Mr. Carpenter's territory comprises those counties north of and including Cochran, Hockley, Lubbock, Crosby, Dickens, and King.

George A. Wampler, former sales representative in the Allis-Chalmers Memphis district office, has been named manager of the Chicago warehouse sales unit, a new section set up in the company's Chicago district office to handle the sales of small apparatus including motors, controls, Texrope drives and pumps. The new unit will be located at 500 East 27th Street in Chicago.

going into winter production of special cements?



If your past year's Type 1 business is slacking off . . . and you're grinding High Early Strength, Type 2, and other special cements

Consider **TDA** the accepted grinding aid,

used in over 300 million barrels since 1938.

TDA increases HES cement grinding rates 25 to 50%.

TDA permits more grinding time for regular and other special cements.

TDA reduces your grinding costs per barrel of cement.

TDA guarantees most efficient mill performance.

TDA gives you the same or better quality of finished product.

TDA works well not only with all types of portland cement, but also with puzzolanic and natural cements. Its cost is amortized as you use it.

TDA pays its own way . . . in increased production and reduced grinding costs.

DEWEY AND ALMY CHEMICAL COMPANY

Cambridge 40, Mass. • Chicago 38 • San Leandro, Calif. • Montreal 32

Harold K. Beck has been appointed commercial vice-president, in addition to his present post as manager of the Washington office of Worthington Pump and Machinery Corporation, according to an announcement by W. H. Feldmann, vice-president in charge of sales.

James J. Murray, owner of the Murray Equipment Company, 11820 Brush Street, Detroit, announces a distributorship to handle Worthington Pump and Machinery Corporation Multi-V Drives and fractional horsepower belts and sheaves.

The Twin Disc Clutch Company, Racine, Wis., has announced the appointment of Paul W. Wahler as service manager and Robert A. Harmon as dealer sales supervisor. Both men will make their headquarters in Racine.

Immediate construction of a manufacturing plant of approximately 272,000 sq. ft., on a 25-acre plot at Union, N. J., has been announced by John A. Hill, president of Air Reduction Company, Inc.

The new plant will employ approximately 800 persons, and will be used by the Airco Equipment Manufacturing Division for the manufacture of welding and cutting torches, tips, regulators, oxyacetylene cutting machines, inert gas arc-welding machines, acetylene generators, oxygene and acetylene manufacturing and distribution equipment.

The eastern sales office of The Dorr Company, formerly located at 570 Lexington Avenue, New York, N. Y., will be moved to the company's general office location at Barry Place, Stamford, Conn. A branch office will be continued at the former New York address.

J. S. Johnson has been appointed assistant to the president of United States Rubber Company, succeeding G. R. McNear.

Charles K. Essex has been appointed Marion Power Shovel Company sales representative for a part of northeastern O., three northern Pa. counties and a section of northwestern N. Y. He will maintain headquarters in the company's general offices in Marion, O.

Earle S. Henningsen, retiring manager of engineering of General Electric's Large Motor and Generator Divisions at Schenectady, N. Y., died recently at Easton Memorial Hospital, Easton, Md., after a brief illness. He was 60 years old.

A pioneer in the development of alternating-current machinery, Mr. Henningsen was to have retired soon after 38 years of service with G. E.

J. M. R. Corbet, president of J. S. Innes Ltd. of Leaside, Ontario, Canada, announces a distributorship to handle Worthington Pump and Machinery Corporation construction equipment.. H. G. Clappison serves as vice-president and general manager and J. H. Clappison as sales manager for the firm.

H. F. Hodgkins, president of Lipe-Rollway Corporation, Syracuse, N. Y., announced the appointment of A. Alven as general sales manager in charge of all sales, including machine tools, bar feed, hacksaw and clutch.

A. Alven

Mr. Alven has been general sales manager of Rollway Bearing Company, Inc., Syracuse, N. Y., a subsidiary of Lipe-Rollway Corporation.

St. Regis Paper Company announces the appointment of James W. Taylor as assistant manager of the southeastern sales district of the company's Multiwall Bag Division. Mr. Taylor's office is located at Baltimore, where he has been associated with the sales district.

William E. McCoy of Camden, N. J., has been named assistant sales manager of the Central Division of Caterpillar Tractor Company, Peoria, Ill., according to an announcement from J. J. Valentine, assistant director of sales. Mr. McCoy has been a district representative of Caterpillar in the Eastern Division.

Damiano Piccinini, Piazza Bernardini N. 6, Lucca, Italy, has been appointed exclusive sales representative in Toscana, Liguria, and Lazio, Italy. The appointments were announced by Earl C. Miller, export manager for the Eriez Manufacturing Company, Erie, Pa.

The Engineering Products Company of Charleston, W. Va., has been appointed sales representative for Eriez magnetic separation equipment. This includes all permanent magnetic separators made by Eriez, as well as RCA electronic metal detectors.

George Garrett, electrical engineer and former chief engineer for E. I. du Pont de Nemours, and Ralph Crump, mechanical engineer, are members of the sales force for Engineering Products Company, with F. E. Anderson, chemical engineer, as general manager.

Five appointments in the Schenectady Large Motor and Generator Engineering Division of the General Electric Apparatus Department have been announced by Earle S. Henningsen, manager of engineering of that division. Bascom H. Caldwell Jr. has been named assistant manager of engineering and D. E. Brainard, Howard D. Snively, Robert V. Shepherd, and Robert W. Wieseman, division engineers.

Appointment of P. L. Edwards as manager of its central district office in Pittsburgh, has been announced by Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J. He succeeds R. C. Rice, retired.

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

As previously indicated in these pages, the writers recently traveled 22 Midwestern and Western states and talked personally with numerous readers of PIT AND QUARRY, including officials and operators of sand and gravel plants, quarries, manufacturers, and many other persons in the nonmetallic minerals field. Several questions involving injuries to employees were uppermost in the minds of many of these persons. Typical questions asked by several readers are these: If an employer pays insurance premiums to have protection of the State Workmen's Compensation Act, can an injured employee ever accept compensation and later sue his employer for damages? Can an injured employee sue his employer for damages instead of accepting compensation insurance?

During the past many weeks the writer made special effort to locate higher court cases which represent dependable answers to these various legal questions involving injuries to employees.

Erroneous Belief

The average official believes that when an application for insurance is accepted by the State Industrial Commission, the company is protected against suits for damages by injured employees. Nevertheless, it is well known among law experts that under various and many circumstances the state compensation laws only *partly* accomplish the desired and intended purposes. Therefore, numerous owners and officials in the nonmetallics minerals industry for many years pay premiums for industrial insurance and yet heavy damage allowances, amounting to thousands of dollars, are awarded by the higher courts to injured employees frequently *in addition* to the compensation allowed under the state compensation laws.

Obviously, it is not the intention of

only a 1 MAN JOB

DIGGING GRAVEL with a

SAUERMAN SCRAPER

With one man at the controls, a Sauerman Power Drag Scraper can reach out hundreds of feet and dig, haul and dump sand, gravel or any bulk material. Simple operation! Economical use of power!

A Sauerman machine can be installed to reach across a pit, pond, river or stockpile, or up to the top of a hill. It moves material rapidly anywhere within its wide radius. Flexible for any ground conditions. Costs only a few cents per cubic yard handled. Gas, electric or diesel.

STORY BEHIND THE PICTURE

When a Sauerman Scraper is installed for making a deep cut and delivering material to a high point, the track cable type of operation often can be used to advantage. The above picture is an example of applying this type of operation in mining a deep deposit of sand and gravel. The scraper bucket is attached to a trailer carrier which rides on a track cable. The bucket returns by gravity from dumping point to digging point, instead of being pulled back by a cable. This reduces the time cycle for a round trip of the bucket — increases the hourly yardage moved.

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the law-making bodies, when enacting state compensation laws, to leave loop holes through which injured employees may recover damages from their employers, in addition to the regular and lawful compensation. In fact, if officials understand and abide by compensation laws, ample protection is afforded both the employer and employees, who must accept and be satisfied with the amount of compensation specified by the state laws.

For illustration, in the leading case of *Holton v. Calyco*, 145 S. E. 637, it was disclosed that an employee negligently injured himself. He sued his employer for damages and introduced testimony showing that the employer had failed to comply with certain provisions of the state compensation laws.

In view of this evidence the court held the employer liable in damages to the employee, notwithstanding the fact that the cause resulted from the employee's own negligence. The court said:

"When an employer comes within the purview of the Workmen's Compensation and is not protected by it, and a suit is brought against him for an injury occurring to one of his workmen, received in the course of his employment and arising out of it, he (employer) cannot interpose as a defense assumption of risks, or negligence and carelessness on the part of the workman."

Therefore, it is quite apparent that an employer who fails to conform with the state compensation laws materially increases his chances for financial losses resulting from damage allowances for injuries to employees.

The same relative laws are conversely applicable to injured employees.

For illustration, in *Montello Company v. Schultz*, 222 N. W. 315, it was disclosed that an employee was injured while performing his regular duties. However, he failed to give his employer a *written* notice of the injury, as required by the compensation laws.

In subsequent litigation the counsel for the employee proved that the employer witnessed the accident causing the injury. Nevertheless the court held the employee not entitled to compensation under the State Workmen's Compensation Act, saying:

"The Workmen's Compensation Act is statutory in its origin, and whatever rights employees have in regard to compensation accrue solely by virtue and under the provisions of the statute."

Can't Sign Release

According to a recent higher court, if an employee is injured by one not his regular employer, the employee can not, without consent of the employer, sign a contract or paper releasing from damages the one who injured him. If he does so, the employer is automatically relieved from paying compensation to him, under the State Workmen's Compensation Act.

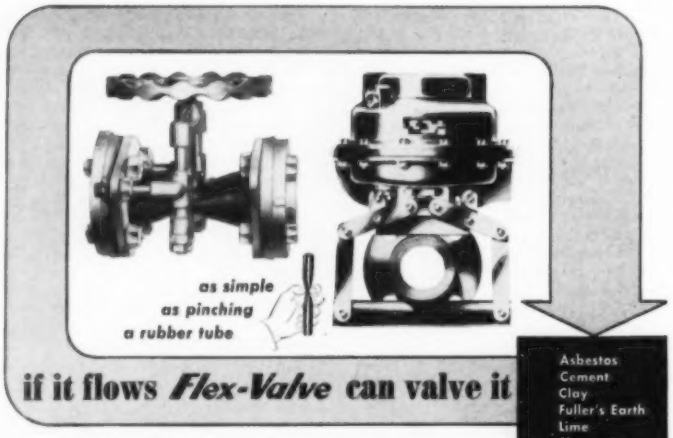
For example, in *Gardner v. Columbia*, 57 S. E. (2d) 308, it was shown that an employee of one Columbia was injured by the *negligent* operation of a truck owned and operated by the Concrete Construction Company. Thereafter he filed a claim for compensation under the Workmen's Compensation Act. This claim was filed against his employer, since he was injured by the truck while acting within the scope of his employment with his employer, Columbia.

Later and without consent of Columbia, the employee accepted $375 from the Concrete Construction Company and signed a full release against any further claims against this company.

In subsequent litigation the higher court held that the employee could not recover compensation from Columbia, saying:

"It seems to us that the conclusion is inescapable, that the respondent (employee) intended to release the Concrete Construction Company from all claims and demands whatsoever arising out of the accidental injury, and that by so doing, deprived his employer, Columbia, of the right of subrogation to enforce against the Concrete Construction Company any legal liability for the injuries suffered by the respondent (employee)."

Also, see *Taylor v. Woodberry Mills*, 45 S. E. (2d) 809. This court held that if an injured employee executes a valid and binding settlement with a third party, without the consent of the employer, this constitutes an election by the employee, and bars any action or proceeding to collect compensation under the terms of the Workmen's Compensation Act.



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FLEX-VALVE resists both abrasion and corrosion; eliminates clogging, plugging, building up; absorbs vibration and misalignment.

When FLEX-VALVE is open it's as free of obstruction as the pipe itself. When it's closed—it's bubble-tight and it closes tight on all of these materials.

Available in either hand or air operated types in sizes from ½ to 12 in.

Users have found FLEX-VALVE to be the low cost solution of tough valve problems. If your present valves aren't 100% effective, why not call on us? Catalog 455 gives details.

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RANITE Hard-Facing Job Averts Long Shut-Down by City Rock Co.

• City Rock Co., Sunland, California, saved three weeks of precious operating time by hard-facing its badly worn primary crusher mantle with RANITE BX. It saved hundreds of dollars, too, besides restoring the crusher to better-than-new condition. • RANITE Hard-Facing Rods are supplied in a wide range of analyses to meet specific conditions for specific pit-and-quarry equipment. • Get the facts. . . . TODAY! Write for Bulletin BX.

Rankin Manufacturing Company

3072 West Pico Boulevard
Los Angeles 6, California

Must Post Notices

The usual state laws specify the number of employees which every employer must employ in order to pay state industrial insurance premiums and to obtain protection. Also, the law provides that all employers who post notices in their place of business, stating that they have industrial insurance, shall *not* be sued by injured employees or their dependents for damages.

The importance of this law is that if the employer *forgets* to post these notices, or the Industrial Commission fails to send the notices to the insured employer, the employer is guilty of violating the law and the employee *need not* accept compensation payments for injuries, but he *can sue* for damages. The law books are full of cases filed by employees against employers who fail to conform strictly with this particular provision of the law.

Law of Safety Regulations

Numerous employers without intent automatically forfeit their rights to protection against suits for damages by injured employees by failure to comply with state laws regulating installation and operation of safety devices. A review of compensation laws in different states discloses that employers who have faithfully paid state compensation insurance premiums may be sued by employees who are injured either "wilfully" or because the employer has in some manner failed to comply with "lawful requirements for the protection of the lives and safety of employees."

Failure to comply with "lawful requirements for the protection of the lives and safety of employees" means that the employer did not provide safety devices, guards, or other structures required by state laws.

Larger Damages

According to a recent higher court, an employee may not recover as much compensation under the State Workmen's Compensation Act, as if he sues his employer for damages.

For example, in *Rosier v. Well Company*, 41 So. (2d) 308, it was shown that a contractor's employee sustained injuries which necessitated the removal of one of his testicles. He returned to work two weeks after the operation and has continued in the same employment at the same salary. Soon afterward the employee filed a claim under the State Workmen's Compensation Act for permanent partial disability. The higher court disallowed the claim, saying:

"If claimant (employee) had brought suit for personal injures based on negligence of appellee (contractor), he would be confronted with a different case, but here the action is brought under the Workmen's Compensation Law, which is limited to compensation for diminution of earning capacity."

Modern higher courts consistently hold that while an employee can receive compensation under the State Workmen's Compensation Act for any disability sustained within the scope of his employment, the employee *cannot* recover *damages* from his employer unless he proves that the injury resulted from negligence of the employer.

What Is Silicosis?

A reader asked this legal question: "What is the legal definition of silicosis, and under what circumstances may an employee not recover compensation under the State Workmen's Compensation Act for disability resulting from this disease?"

In order to answer this question adequately, the writer located several late and leading higher court cases which illustrate various reasons employees can not receive an award of compensation for disability arising from silicosis.

First, it is important to know that the higher courts clearly hold that silicosis, although termed a disease, is traceable to a *personal injury* within the meaning of the workmen's compensation law. See *Penta*, 177 N. E. 800. The personal injury is caused by the gradual accumulation in the body of harmful foreign matter and, when such accumulation becomes so great that it results in incapacity for work, the injury becomes compensable. Also, see *White*, 274 Mass. 352; *DeFilippo's Case*, 188 N. E. 245; and *Duggan's Case*, 315 Mass. 355.

Employee Must Prove Case

Modern higher courts consistently hold that an employer may avoid paying compensation to an employee suffering from silicotuberculosis if he proves that the employee had not been exposed to harmful quantities of silicon dioxide (SiO_2) dust during his employment.

For example, in *Orosco v. Poarch*, 218

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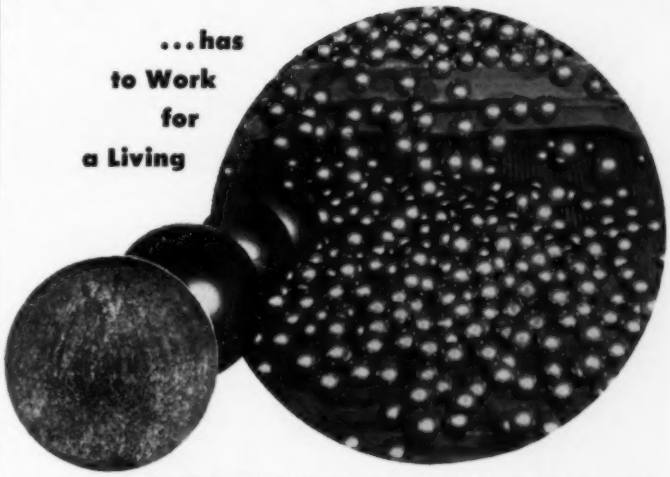

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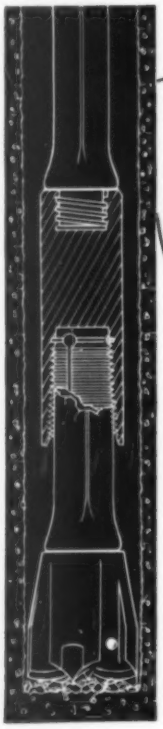

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Pac. (2d) 875, an employee named Orosco filed suit under the Occupational Disease Disability Law to recover disability benefits for silicotuberculosis.

There was no dispute that Orosco was suffering from silicotuberculosis at the time the application was filed with the commission, nor was there any question that he had worked in various mines in some phase of hard-rock mining in the state.

However, Orosco failed to prove that the dust he breathed contained sufficient harmful elements to cause his disease. On the other hand, the owner of the Monte Cristo Mine, where Orosco last worked, freely admitted that there was lots of silica in the Monte Cristo ore, but he further testified that there is a difference between silica and silicon dioxide (SiO_2) dust. All quartz, according to his testimony, consists of silica; but silicon dioxide is the result of oxidation of silica, and unless the oxidation process has been consummated, silicon dioxide (SiO_2) dust does not exist.

In view of this testimony the higher court refused to award Orosco compensation under the State Workmen's Compensation Act, and said:

"The fact that applicant (Orosco) is suffering from silicotuberculosis presents conclusive evidence that at some time he has been exposed to silicon dioxide (SiO_2) dust. It is also conclusive so far as the record reveals that he was subjected to that exposure in some of these small mines in which he worked. He is totally disabled. . . . Nowhere in the record is there an unequivocal statement by any witness that silicon dioxide (SiO_2) dust existed in any of the mines in which applicant worked during the ten years immediately preceding his disablement."

For comparison, see *Brewer v. Industrial Commission*, 89 N. E. (2d) 591. Here the testimony showed that the work and material upon which an employee worked contained only 0.3 to 0.4 percent of free silica, and that vacuum connections sucked away all dust formed in the area where employee worked.

The higher court refused to award the employee compensation for silicosis.

And again see *King Coalition Mines Company v. Industrial Commission*, 204 Pac. (2d) 817. In this case the medical testimony was positive about the presence of silicosis in a deceased employee's lungs, but essential evidence about whether the disease contributed to the death of the deceased was not given. Hence the higher court refused to award compensation to the deceased employee's widow.

Killed While Serving Employer

According to a recent higher court, an employee who sustains an injury or is killed *while serving his* employer is entitled to recover compensation although at the time of the accident he was *not* performing his regular work.

For example, in *Hamilton Motor Company v. Cooner*, 47 So. (2d) 270, it was shown that one Cooner had been employed by the Hamilton Motor Company as a mechanic for about ten years. Cooner worked as a mechanic, servicing

cars, pulling in wrecks from the highway to his employer's garage and the like work. One day his employer asked him to work overtime to assist a contractor to finish pouring concrete in a grease pit. Cooner told his employer that he would have to notify his wife that he intended working overtime. While driving to give his wife this information, Cooner's automobile collided with a bus and he was killed.

The higher court held that Cooner's wife was entitled to compensation under the State Workmen's Compensation Act for death of Cooner and said:

"The question for decision is whether the death of Cooner arose out of and in the course of his employment. . . . There is no doubt that at the time of his death Cooner was performing a service for his employer. It was to keep an essential man on the job to perform a necessary service in working and coloring the concrete being poured while setting and before it hardened."

Voluntary Risk

A recent higher court held that an employee who assumes a risk voluntarily, and outside the scope of his employment, cannot receive compensation for an injury.

For example, in *Peoples Company v. Industrial Commission*, 89 N. E. (2d) 808, the testimony showed facts, as follows: One George had been employed for more than 22 years as a laborer working at various jobs, including running a machine, working on a conveyor belt, on a crane, as a fireman, mechanical helper, and ditch cleaner and digger. One day he was directed by his foreman to assist the engineer in the subbasement. Upon finishing this job he did not report to his foreman, but upon his own *volition*, and without knowledge of his foreman, he climbed to the top of a cupola, which was the junction point of different conveyor belts and, as he testified later, *to clean up and carry away some dust that he found in the tower*. Here he loafed and gazed out of the window. At this time the belts were empty and not in operation. Finally the employee started the belts in operation and his hand was caught under a roller while he attempted to remove dirt from the belt. His calls for help were heard by another employee and by the foreman. The belts were stopped and his hand was released from under the rollers. He sued for compensation under the State Workmen's Compensation Act.

During the trial the employee admitted that no one told him to clean the belts. Therefore, the higher court refused to award George compensation, and said:

"Any number of previous jobs performed by claimant (employee) in the process of cleaning the belts could in nowise give him the right or authority to put the belts in operation. This was strictly outside his scope of authority, express or implied, and in doing so he was a mere volunteer. In short, he was doing something he was not only not required to do but had no business doing."

For comparison, see *Shedlock v. Cudahy Company*, 60 Atl. (2d) 514. Here an employee was seriously injured when engaged in a friendly wrestling match during the time he was supposed to be at work. The higher court refused to award compensation under the State Workmen's Compensation Act. The court said:

"It seems clear that where an employee indulges in horseplay with his fellow employees during the hours of his employment his injuries cannot be deemed to have had any causal connection with his employment."

Veteran Injured

Considerable discussion has arisen from time to time over the legal question: If a veteran *trainee* is injured, is he entitled to receive compensation under the Federal Vocational Rehabilitation Act or the Workmen's Compensation Act?

In *Dolezal v. Rizek Company*, 199 Pac. (2d) 179, the testimony showed that a contractor made arrangements with the Veterans Administration to train veterans. The contractor paid the veterans a small salary and the main salary to the veteran was paid by the government. A veteran was injured.

The higher court held that the veteran could receive compensation from the contractor under the State Workmen's Compensation Act.

Single Employer Liable

According to a recent higher court, if an employee works for two employers and sustains an injury while working for

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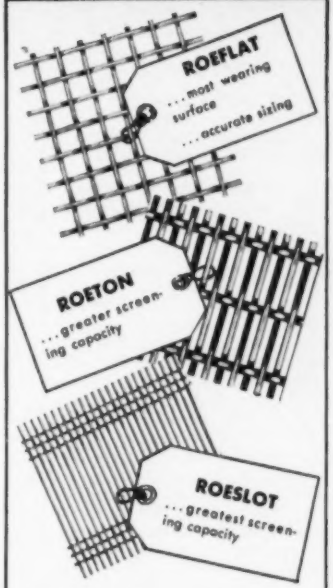

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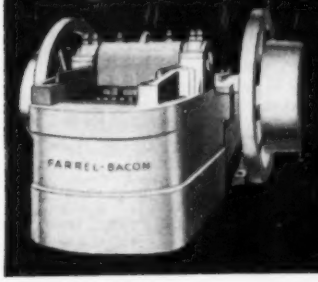

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either employer, the latter is *solely* liable for payment of compensation to the injured employee under the State Workmen's Compensation Act.

For example, in *Brand v. Beacon*, 89 N. E. (2d) 617, the testimony showed that an employee worked for two employers. One day he was injured while working for one Beacon.

The higher court held Beacon must pay compensation to the employee under the State Workmen's Compensation Act.

Parked on Pavement

The fact that the driver of a motor vehicle violates a state law does *not always* result in the employer being liable for resultant injuries to the drivers of other vehicles.

For example, in *Olson v. Peter*, 78 N. E. (2d) 843, it was shown that a truck had mechanical trouble, and had to be stopped on the pavement. A passenger car crashed into the rear of the truck, seriously injuring its driver, who sued the company for damages.

Although the injured driver proved that the truck was stopped on the paved highway in violation of a state law, the higher court refused to hold the company liable because the testimony indicated that the driver of the passenger car was driving too fast to stop when seeing a dangerous obstacle within the range of his headlights. The court said:

"It was for the jury to determine, from the evidence, whether plaintiff (injured driver) was negligent or imprudent, and it was not the province of the court to tell the jury that a certain act was imprudent or negligent."

Therefore, one who violates a state law is not liable for resultant injuries to another, if the latter's own negligence caused his injuries.

Independent Contractor

According to a recent higher court, an independent contractor cannot recover compensation under the State Workmen's Compensation Act for an injury.

For example, in *Wilds v. Morehouse*, 42 N. W. (2d) 649, it was shown that a truck owner transported products for a fixed compensation per load.

The truck owner was seriously injured and he sued his employer for compensation under the State Workmen's Compensation Act. The higher court refused to award compensation, saying:

"Appellant (truck owner) was in the business of transporting commodities by truck, and was an independent operator. . . . He was subject to the will of the employer only as to the result of the work. . . The appellant was an independent contractor, and not an employee, within the meaning of the Workmen's Compensation Act."

traffic news

CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 88041 (2)—Proposed to establish on stone, crushed, stone screenings, crushed, in bulk in open-top cars, carloads, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Logansport, Ind., to Granger, Ind., 144 cents net ton.

Docket 88053 (1)—Proposed to establish on lime, run-of-kiln lump lime, not ground or hydrated, in carloads, carload minimum weight 100,000 lbs., unless car is loaded to full cubical capacity, when actual weight will apply, from Woodville, O., to Manistee, Mich., 385 cents net ton.

Docket 88064 (2)—Proposed to establish on limestone, agricultural, unburned, carload, minimum weight per car 25 tons, from Gibsonburg, Millersville, and Woodville, O., to Venice, O.; open cars, 183 cents; closed cars, 208 cents net ton.

Docket 88072 (2)—Proposed to establish on crushed stone in bulk and crushed stone screenings in bulk, in closed cars or open-top cars protected by tarpaulin or other protective coverings, minimum weight 90 percent of the marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Chicago, Ill., to the following points:

South Bend, Notre Dame, Ind. . . . . 158 cents net ton

Elkhart, Granger, and Mishawaka, Ind. . . . . 158 cents net ton

Docket 88079 (1)—Proposed to establish on rip rap stone, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Milltown and Marengo, Ind., to Mt. Vernon, Ind., $1.83 net ton. (Not subject to ExParte 162 166 and 168 increases.)

CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 88063 (1)—Proposed to establish on stone, fluxing furnace or foundry, melting or refractory, unburned, in bulk, carload minimum weight 90 percent of marked capacity of car, except that when cars are loaded to full cubical or visible capacity, actual weight will apply from Bloomville, O., to Lorain, O., 163 cents per gross ton.

GENERAL FREIGHT TRAFFIC COMMITTEE

Eastern Railroads

Bulletin G-3264 (Shipper)—Proposed to

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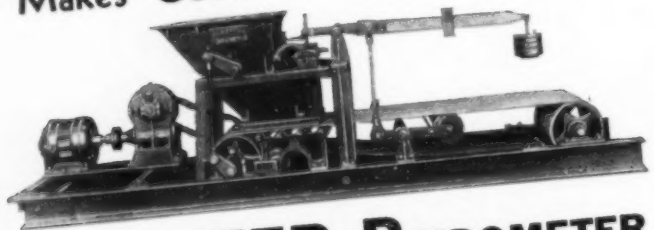

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Bulletin G-3302 (Shipper)—Sand (except sand, molding, bonded—naturally or otherwise—and ground or pulverized sand) in open-top cars, without tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity or car, but orders will not be accepted for closed or open-top cars marked of less capacity than 60,000 and 80,000 lbs., respectively to Hubbard, O., from Godfrey, Pa., and Leechburg, Pa., $1.89 per net ton, including all increases.

ILLINOIS FREIGHT ASSOCIATION

Docket IRC 511-1020—Proposed to establish on limestone, crushed or ground, in closed cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded in full cubical or visible capacity, actual weight will apply from Anna, Ill., to representative points shown below:

Present—various rates; no through rates in effect.

Proposed to the following points:	Rates in cents of 2000 lbs.
Streator and Chicago Heights, Ill.	2.82
Ft. Madison, Ia.	2.94
Taylorville, Ill.	1.97
Sterling, Ill.	3.30
Aurora, Ill.	2.70
Milwaukee, Wis.	4.52
Davenport, Ia.	3.80

(Not subject to ExParte 162-166-168 increases.)

Docket IRC 511-1021 (MRP 5619)—Proposed to establish on sand (except blast, core, engine, filter, fire, furnace, foundry, glass, grinding, moulding, polishing or silica). Gravel, strippings, sand and/or gravel pit, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible capacity, actual weight will apply, but not less than 40,000 lbs., from Colona to Moline, Ill., to Rockford and Freeport, Ill. Present: 209 cents per net ton, subject to ExParte 162-166 and 168 increases. Proposed: $1.30 per net ton, subject to ExParte 162-166 and 168 increases.

NEW ENGLAND TERRITORY RAILROADS
Freight Traffic Committee

Docket 899 (1-R)—Proposed to establish commodity rate of 90 cents per net ton on stone, broken or crushed, other than coated, in bulk, in gondola or other open cars, minimum weight as percent of marked capacity of car furnished, except that when cars are loaded to cubical or visible capacity, actual weight will apply, but orders for cars will not be accepted for cars of less marked capacity than 80,000 lbs., from West Quincy, Mass., to Taunton, Mass., in lieu of present commodity rate of $1.10 per net ton, per N.Y.H.H.&H. Railroad MDPU 1953. Present and proposed rates include all increases.

NORTH PACIFIC COAST FREIGHT BUREAU DOCKETS

Docket (X) NC-1473 (S) (Reopened)—Proposed to establish on lime in bulk, carload, Evans, Wash., to Hanford and Richland, Wash., rate of 28 cents per

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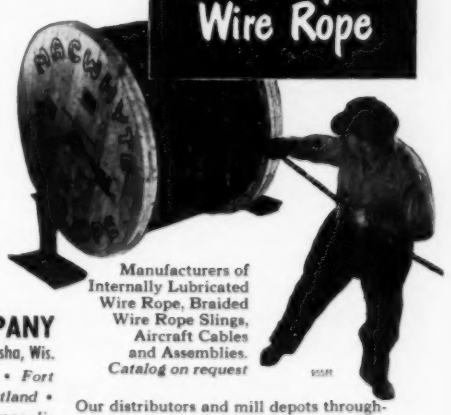

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Docket NC 1673 (S)—Proposed to establish reduction in rates on lime, carload, Roche Harbor, Wash., to Longview, Wash., Portland and St. Helens, Ore., Yakima Valley.

Docket NC 1674 (S)—Proposed to establish on lime rock, carload, from Vancouver, B. C., of 15 cents per hundred weight to Bellingham, Wash., and 20 cents per hundred weight to points south thereof to Seattle, Wash., minimum 40 tons.

Docket NC 1692 (S)—Proposed to establish a rate of 8½ cents per hundredweight on silica sand, carload, minimum 100,000 lbs., from Chewelah, Wash., to Wallace, Idaho.

NORTH PACIFIC COAST FREIGHT BUREAU AND PACIFIC SOUTH-COAST FREIGHT BUREAU JOINT DOCKET

Docket J.T. 1431 (S)—Request for rate on stone, natural, rough quarried, carload, from Jean, Nev., and Cedar City, Utah, 68 cents per hundredweight to Portland and points taking same rates and 73 cents per hundredweight to Seattle and points taking same rates, minimum 50 tons.

SOUTHWESTERN FREIGHT BUREAU DOCKET

Docket 55025 (1)—Proposed to establish on Rock, Perlite, Socorro, N. M., to Chicago and Joliet, Ill., of $5.49 per net ton of 2,000 lbs., minimum weight marked capacity of the car but not less than 80,000 lbs., on perlite rock, broken, crushed, ground, dried or not dried, not expanded, carloads, from Socorro, N. M., to Chicago and Joliet, Ill.

Docket 55031 (2)—Proposed to establish on stone, Carthage, Mo., to stations in Iowa and Missouri on Wabash Railroad. Establish rates of 37 cents on stone, rough quarried or sawed, not further finished; 40 cents on stone, cut and dressed, not polished, lettered or figured; 46 cents on polished stone, not lettered or figured from Carthage, Mo., to Blanchard, Coin, Bingham, Shenandoah, Summit, Imogene, Strahan, and White Cloud, Ia. (Rates not subject to X-162-166-168 increases.)

Docket 55036 (2)—Proposed to establish on gypsum, crude or crushed (not ground), a rate of 520 cents per net ton from Acme, Tex., to Ragland, Ala., subject to Increase Tariffs X-162-6-8 series, in bulk, carloads, minimum weight 40 tons.

TEXAS-LOUISIANA FREIGHT BUREAU

Docket 11429—TX—Proposed to establish on lime, common, hydrated, quick or slaked, from Dettlinger, McNeil, Old Round Rock and Round Rock to Texas Gulf ports, carloads, in bags or barrels, minimum weight 25 tons, as follows: from Dittlinger, McNeil, Old Round Rock and Round Rock, Tex., to Galveston, Houston and Texas City, rate of $5.59; to Beaumont, rate of $6.27; to Corpus Christi, rate of $5.96 per ton of 2,000 lbs. Not subject to ExParte 162, 166 or 168 increases, to apply to shipside.

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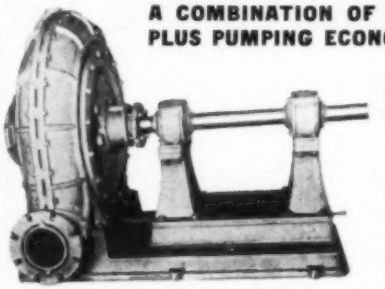

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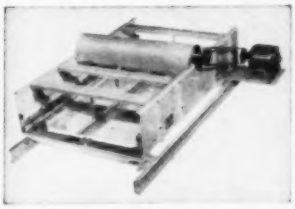

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A reset timer for accurately timed test periods.

Operation from 110-60 A.C.

Write for catalog data.

SYNTRON CO.
385 Carson Ave. Homer City, Pa.

FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS

Docket TL M-1093 (Increase) (Carrier)—Rate of $1.50 per net ton, subject to ExParte increases, on lime, common, hydrated, quick, or slaked, carload minimum weight 25 tons from Stephens City, Va., to Grove, Md., now subject to expiration date of December 31, 1950, will be permitted to expire.

Docket TL M-1136 (Shipper)—Proposed to establish on dolomite, roasted (refactory dolomite), in granular form, treated or untreated, clinkered and/or burned to a dead state, carload minimum weight 90 percent of marked capacity of car, from Billmeyer, Pa., to Birdsboro and Phoenixville, Pa., $2.53 and Reading, Pa., $2.73 per net ton, including all increases.

Docket TL-M-1146—Proposed to establish a rate of $2.53 per net ton on gypsum rock, crude, in open-top cars not protected by tarpaulin or other protective coverings, also $2.75 per net ton on gypsum rock, crude, in closed cars or open-top cars protected by tarpaulin or other protective coverings, carload minimum weight 90 percent of marked capacity of car from Palasterco, Va., to Lone Star, Va. These rates include all increases.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket X-E-41-1329—Proposed to establish on stone, natural or cast, carload, from origins in Indiana named in Central Territory Railroads' Tariff 539-B. To State Hospital Spur, Neb. Proposed: add State Hospital Spur, Neb., as a destination on the C.ST.P.M.&O. Ry. in the above mentioned tariff, and apply thereto Rate Basis No. 181.

Docket X-E-41-1338 (Shipper)—Stone, broken, crushed or ground, including stone, rip rap, quarry scrap or chips, in open cars, minimum weight 90 percent of marked capacity of car, but not less than 50,000 lbs. from Sioux Falls, Dell Rapids and Spencer, S. D., to Sioux City, Ia. Proposed: $1.45 per net ton, including all ExParte increases.

Docket E-41-1339 (Shipper)—Silica sand, carload minimum weight same as now applicable in connection with Item 1595, that is 90 percent of marked capacity of car except that actual weight will govern when car is loaded to full visible capacity from Clayton, Ia., to destinations in Southwestern Territory, as provided in Item 1595-A, Supplement 141 to Southwestern Lines Tariff 162-T. Proposed 96 cents per ton of 2,000 lbs. when in box cars, 95 cents per ton of 2,000 lbs. when in open-top cars. In addition to rates from St. Louis, Mo., provided in Item 1530 of Southwestern Lines Tariff 162-T.

Docket X-E-41-1340—Proposed to establish on crushed stone or rip rap, carload minimum weight 90 percent of marked capacity of car from stations (not yet named) 22.3 miles west of Denver between Fire Clay and Plainview, Colo., to Trenton, Neb. Proposed: 265 cents per ton of 2,000 lbs. Includes all increases.

Gyratory Crushers
with
MANGANAL
U.S. Patents 1,876,738-1,947,167-2,021,945

11% to 13½%
Manganese-Nickel Steel ROUND APPLICATOR BARS

- **SPEED REPAIRS** . . . replace worn metal faster, more economically with **MANGANAL** Round Applicator Bars.
- **GYRATORY CRUSHERS** rebuilt with Manganal often outlast new ones.
- **ELEVEN SIZES** of **MANGANAL** Round Applicator Bars are available for all degrees of wear . . . attach with **MANGANAL** Bare or Special Tite-Kote Electrodes for greatest strength and longest wear.
- **MANGANAL** workhardens under impact and abrasion to 550 Brinell . . . tensile strength up to 150,000 p.s.i.

FREE—Informative literature outlining newest methods for speedy and economical repair of worn equipment.

NAME OF NEAREST DISTRIBUTOR UPON REQUEST

STULZ-SICKLES CO.
SOLE PRODUCERS
94 N. J. Railroad Ave., Newark 5, N. J.

"No problem in hose application is too tough for Republic. Republic Distributors like me make free analyses of every job. Our recommendations save you money."

"A clean hose gives longer service. Schedule regular scrubdown periods using water and ordinary detergents to remove oils and grease."

Try Republic First...

THERE'S A SPECIAL REPUBLIC HOSE FOR EVERY NEED

Chances are your "special" hose problems have long since been solved by Republic Rubber. Republic makes hundreds of different kinds of hose, each tops in its own right, each originally developed for "special" requirements of industry. Your local Republic Distributor knows the entire Republic line . . . knows which specific product fits your need best. Give him a call today or write us direct. If the hose you need isn't already made, it soon will be—by *the* specialist in the field of industrial rubber.

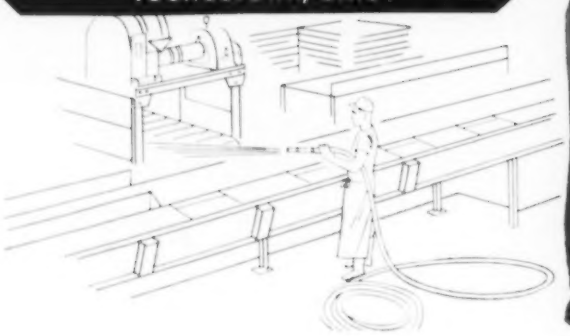
"Republic's New Hot Water Wash-down Hose has a tough, grease-resistant cover that doesn't mark or discolor our stainless steel meat packing equipment. What's more the hose is lightweight, flexible easy to handle in every respect. We're sold on Republic!"

INDUSTRIAL RUBBER PRODUCTS BY

REPUBLIC RUBBER DIVISION

Lee Rubber & Tire Corporation

YOUNGSTOWN, OHIO



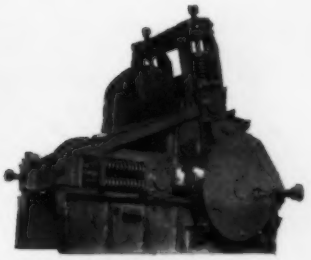
One ax handle wide... 65 miles a day...

THAT'S THE WIDTH ... and the speed ... of a 54" x 24" roll crusher. It can turn out a ribbon of pay material 24" wide ... 65 miles long every day.

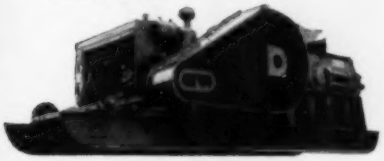
Each rock is *grabbed* by the rolls and is force fed in a continuous crushing action. No eccentric ... no intermittent crushing ... no gravity feed ... and the material is cracked, not pulverized.

Of course Pioneer makes roll crushers. We're roll crusher specialists! We build twin rolls in four sizes ... we build them for stationary plants and we build them on wheels ... we are the only manufacturers of Triple Roll Crushers. As specialists, we originated "Star Gear" drive for roll crushers, we have cheek plates that make shells wear uniformly from end to end. And we know how to keep shells from banging together ... and cracking.

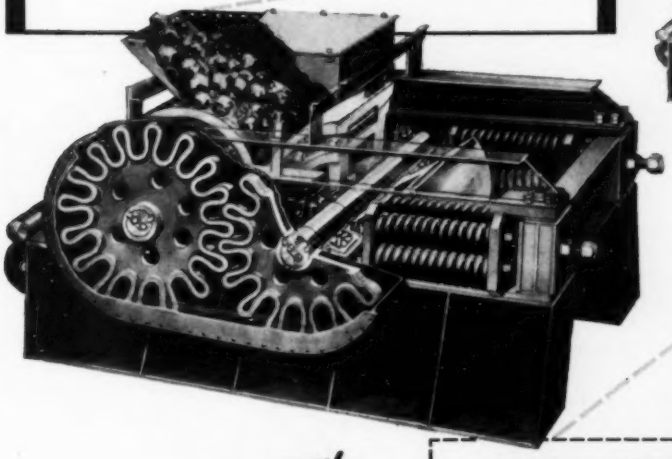
If you want more specification material at lower cost per ton, mail the coupon today.

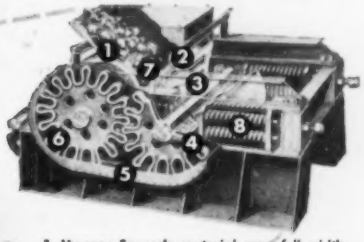


TRIPLE ROLL CRUSHERS for increased stage of reduction, made in three sizes; 54" x 24", 40" x 22" and 30" x 18". Third roll attachment available for Pioneer Twin Roll Crushers.



COMPLETE SECONDARY UNITS for stationary plants. Pioneer builds Roll Crushers on skids, with motor or power unit and drives. Simplifies installation ... assures satisfactory operation from the start.





1. **Hopper Spreads** material over full width of roll.
2. **Cast Manganese Steel Shells** held in place by full circle wedges.
3. **Shells Changed** without removing bearing from shaft.
4. **Timken Roller Bearings** in self-aligning pillow blocks.
5. **Oil Tight,** dust tight gear housings.
6. **Star Gear Drive** eliminates chains.
7. **Wedge Blocks** provide easy adjustment.
8. **Safety Spring Release** protects crusher.

BUY BOTH!

Higher Output, Lower Upkeep!

Pioneer

Continuflo **EQUIPMENT**

MAIL COUPON TODAY!

Pioneer Engineering Works

1515 Central Avenue • Minneapolis 13, Minn.

● Please send information on the Roll Crushers checked:

- ☐ 24 X 16 ROLL CRUSHER
- ☐ 30 X 18 ROLL CRUSHER
- ☐ 40 X 22 ROLL CRUSHER
- ☐ 54 X 24 ROLL CRUSHER
- ☐ TRIPLE ROLL CRUSHER
- ☐ ROLL CRUSHERS ON WHEELS

Name _____

Company _____

Address _____

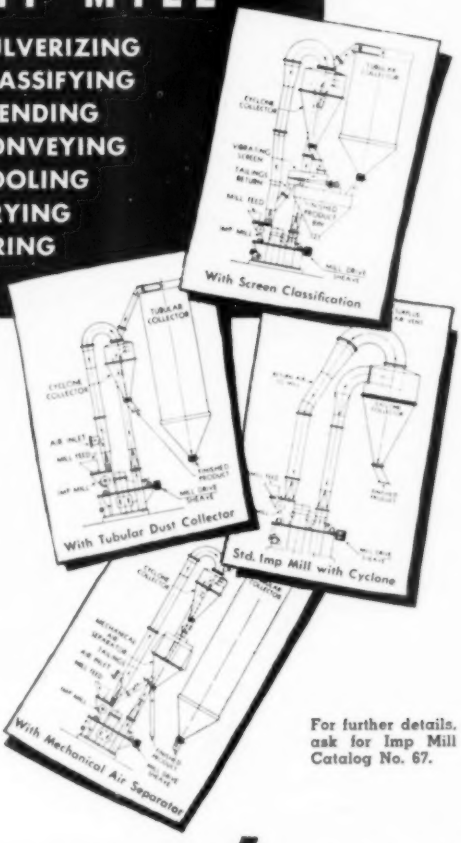
City _____ *Zone* ____ *State* _____

The Answer

to hundreds of GRINDING PROBLEMS

RAYMOND IMP MILL

- PULVERIZING
- CLASSIFYING
- BLENDING
- CONVEYING
- COOLING
- DRYING
- FIRING



The Raymond Imp Mill finds wide use in the softer non-metallics field because of its proven economy in production and its adaptability to so many different pulverizing operations.

Material is handled automatically in an enclosed, dustless system, and the unit provides a clean, low-cost method for producing diatomaceous earth, clays, and similar non-metallic minerals.

The Imp Mill is a flexible installation requiring minimum floor space, and which can be readily arranged to fit practically any plant layout. The diagrams at the right show the Imp Mill possibilities for a variety of applications.

Tell us about your problem. There may be available exactly the type and size Imp Mill to meet your requirements.

For further details, ask for Imp Mill Catalog No. 67.

COMBUSTION ENGINEERING – SUPERHEATER, INC.

Sales Offices in Principal Cities

Raymond
PULVERIZER DIVISION

1321 North Branch St.
Chicago 22, Illinois

TYPE "HS"... **HEAVY DUTY BUCKETS**

First Choice

WHEN HARD FORMATION IS A PRIMARY PROBLEM

3/8 TO 40 CUBIC YARDS

To move any hard formation and make it pay, your bucket must STAY ON THE JOB with minimum time off for maintenance. You are assured efficient bucket performance and reliability under hard knocks when you use a HENDRIX "HS" Heavy-Duty Bucket... engineered to "take it."

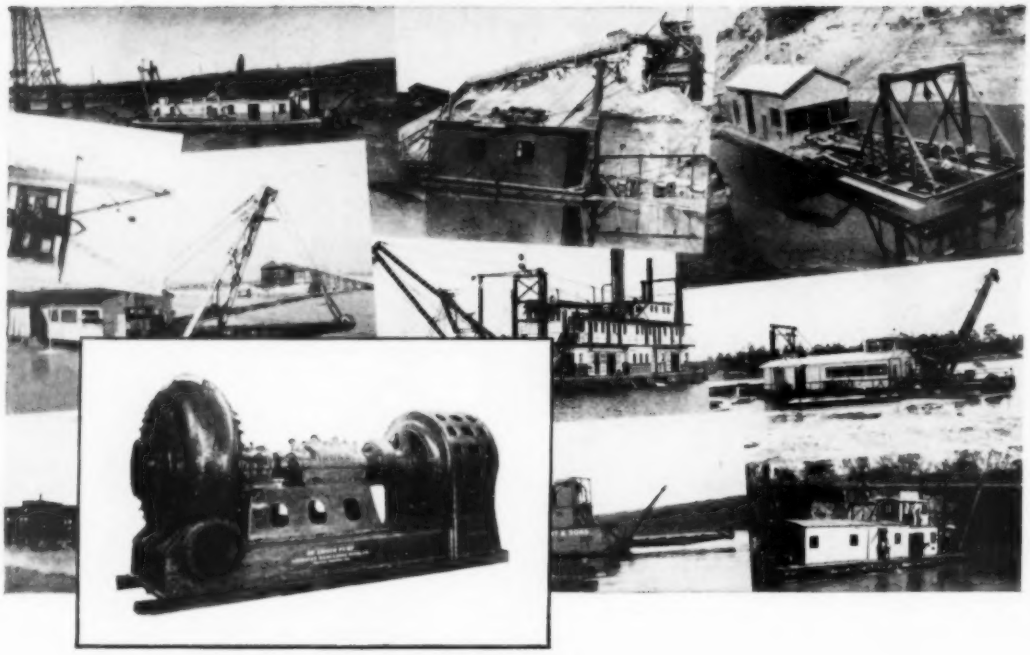
Get an extra margin of work capacity and greater life expectancy on every job by using a HENDRIX "HS." Renewable manganese steel shocs for bottom runners and corner wearing plates... easily replaced on the job ...bring maintenance costs DOWN and profits UP! No matter how tough the job, HENDRIX "HS" Heavy Duty Buckets are FIRST CHOICE with the men who use them!

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

For descriptive literature ask your dealer or write

HENDRIX MANUFACTURING CO., INC.

MANSFIELD – LOUISIANA



in suction dredging . . .

More owners buy AMSCO® than any other pump!

Here's why so many operators find that AMSCO Pumps make dredging more profitable

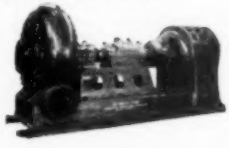
The dredges shown above are typical of over a thousand that have one feature in common . . . they're equipped with Amsco Manganese Steel Dredge Pumps. In fact, almost any operator will tell you that an Amsco Pump is the one to buy.

Why this outstanding preference? First, because profitable dredging requires high efficiency . . . second, because service records prove beyond question that tough manganese steel is the answer for long-wearing, trouble-free pump performance. *An Amsco Pump wins the profit battle against impact and abrasive wear.*

When you handle aggregate with equipment that *lasts longer* . . . that does the job with *greater efficiency* . . . you make *higher profits.* That's why more Amsco Manganese Steel Dredge Pumps are in use than any other make or type.

Amsco has the pump you need—large or small. Write today for the facts.

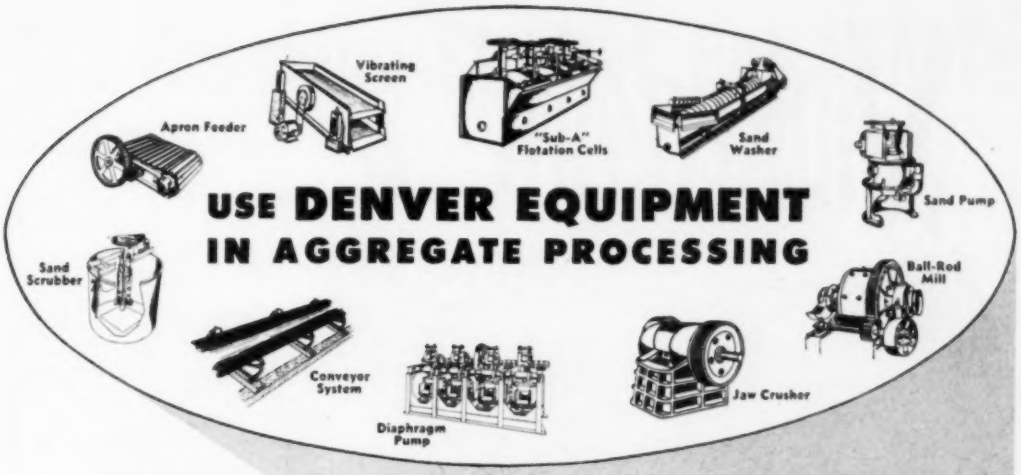
AMSCO®
Dredge Pumps



AMERICAN **Brake Shoe** COMPANY

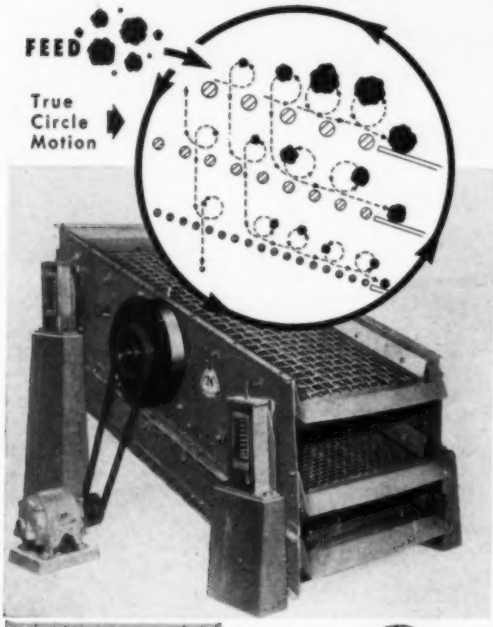
AMERICAN MANGANESE STEEL DIVISION
396 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.



less fines in classified aggregate by using the

DENVER · DILLON Vibrating Screens



Better Cleaning . . . Less Penalty . . . More Profit. Material literally comes straight down hundreds of times over the complete area of the fully activated screen so that every particle of undersize passes through the screen. Result is a minimum of undersize in every sized product.

Circle Throw Eccentric More than Vibrates the Screen. The true circle motion lifts each particle up, back and directly down onto the screen cloth. Material more than flows across the screen . . . hundreds of times it moves up, back and down so that every particle of undersize passes through.

Result . . . a cleaner product . . . less penalty . . . more profit.

With the Denver Dillon Screen *you also get . . . Two Bearing Suspension . . . Fifty Percent Less Horsepower Consumption . . . Minimum Maintenance . . . No Blinding of Screen Cloth . . . and many other features.*

Want more information on this super screen?

Write today for Bulletin S3-B5, giving us some idea of your screening problem. You will receive a prompt reply and a solution.

FLOTATION ENGINEERS

DENVER EQUIPMENT 24 HOUR SERVICE COMPANY

"The firm that makes its friends happier, healthier and wealthier"

DENVER • NEW YORK • CHICAGO • EL PASO • VANCOUVER • TORONTO • MEXICO, D.F. • LONDON • JOHANNESBURG

DENVER EQUIPMENT COMPANY, 1408 17th St., Denver 17, Colorado

"Shakedown"

You wonder, driving over today's concrete roads, how they make them so smooth.

Part of the answer, a part you seldom see, is the Viber Full-Depth Internal Concrete Paving Vibrator.

One-man operated this machine is a time and money-saver when it comes to producing uniform compaction in the stiffest concrete mixes. It produces, as fast as concrete can be placed on the sub-grade, the highest quality 11 or 25 foot pavement.

Viber's Heavy-Duty Model No. 60 demands rugged, day-in day-out service from everyone of its component parts. That's why SKF Single-Row Deep-Groove Ball Bearings are specified in the vibrator and SKF Red Seal Bearings in the motor.

If concrete—for paving, footings, rigid frame structures, industrial floors, bridge decks or other locations—is your problem, write Viber Co., 726 South Flower St., Burbank, Cal., for details about the Viber "60" and other vibrating equipment. 7205

8 REASONS WHY SKF IS PREFERRED BY ALL INDUSTRY

integrity
craftsmanship
metallurgy
tolerance control
surface finish
product uniformity
engineering service
field service

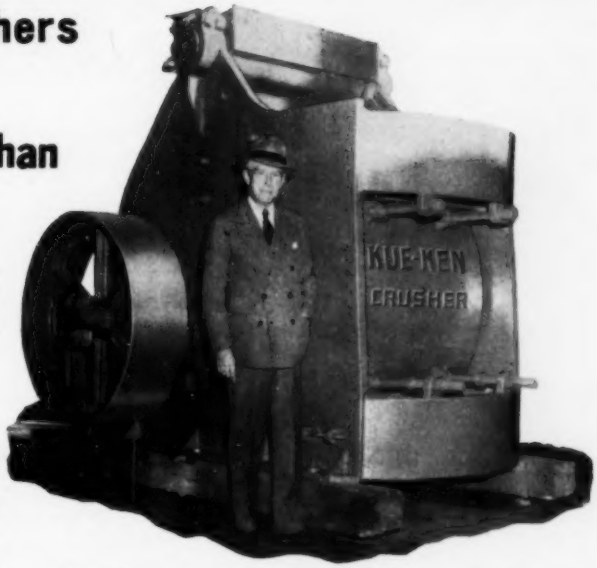
SKF

SKF INDUSTRIES, INC., PHILA. 32, PA. — *manufacturers of* SKF *and* HESS-BRIGHT *bearings*

375 Crushing Strokes Per Minute

with Kue-Ken* Crushers 25 to 50% More Strokes Per Minute Than Any Other Crusher

Crushing capacity is directly proportionate to crushing strokes per minute and that is why Kue-Ken Crushers crush more and crush finer.

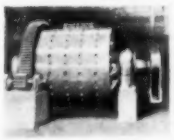


ONLY KUE-KEN CRUSHES WITHOUT RUBBING

That is why jaw plates last 5 - 10 times longer.

All mechanism runs in a sealed, filtered oil bath. This "crankcase type" lubrication system requires servicing only twice yearly. Oil cans and grease cups banished forever.

Integral safety device protects against tramp iron or overload without shearing or breaking parts. Quickly reset.



Rib-Cone Ball Mills

Above is shown a #42" x 27" Kue-Ken. Capacity 250-350 tons per hour. Only 60 H.P. required. Weighs 30,495 lbs.

22 Sizes 12" x 7" to 48" x 60"

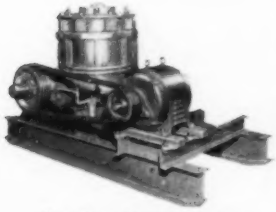
Get Complete Facts — Write for Bulletins

YOUR NEAREST WESTERN DEALER

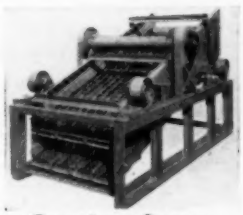
California (Southern)—Migula & Co., Pasadena
Montana—Caird Engineering Works, Helena
Texas—Engineering Sales Co., San Antonio
Utah—Lund Machinery Co., Salt Lake City

Licensed mfgr. for Eastern U. S., Canada and Puerto Rico. Pennsylvania Crusher Co., Broad and Arch Sts., Phila., Pa.

MAIL COUPON TODAY



Kue-Ken Gyracones



Overstrom Screens

Straub Mfg. Company
546 Chestnut Street, Oakland 20, California

• Please send your free bulletin on

JAW CRUSHERS ☐ BALL MILL ☐
GYRACONES ☐ SCREENS ☐

Name .....
Company .....
Address .....
City ..... State .....

*Pronounced Que-Ken. U.S. and Foreign Patents Pending.

547 CHESTNUT ST. • OAKLAND 20, CALIFORNIA

STRAUB MFG. CO.

Kue-Ken Balanced Crushers	Rib Cone Ball Mills	Overflow Classifiers
Kue-Ken Simplax Crushers	Concentrating Tables	Feeders
Kue-Ken Gyratory Crushers	Overhead Eccentric Crushers	Screenwheel Classifiers

CERTAINTEED PRODUCTS

Opens the Doors

of their NEW GYPSUM BOARD PLANT

AT FT. DODGE, IOWA

. . . where the NEW

COE GYPSUM* BOARD DRYER

contributes greatly to the monthly production

of TWENTY MILLION FEET

*This new Coe 5 Air Zone, 9-deck Gas Fired drier has a 460 ft. enclosed section and is complete with automatic feeding and unloading equipment.

Boards are fed, end to end to the 8 levels of the drier by an automatic tipple. Discharge is also automatic with boards feeding from all 8 levels onto one.

The **COE MFG.** *Company*

352 BANK STREET • PAINESVILLE, OHIO

12,500,000 TONS HANDLED...

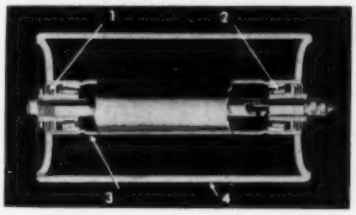
was just a start for Rex Idlers

You'd think that carrying 12,500,000 tons of material would be a lifetime job for any belt conveyor idlers. After these rugged Rex Idlers handled that amount of aggregate for the Shasta Dam as a starter, the same idlers were installed on the longest, highest belt slope conveyor in regular service. And they're still going strong.

That's real proof that Rex Belt Conveyor Idlers give you lowest cost service . . . that they eliminate costly down time caused by premature idler failures. Not only do Rex Idlers last longer, they also are easy on the belt. They eliminate destructive belt pinching and creasing, and absorb practically no power. Special application idlers, such as Rex Impact Cushioning Idlers illustrated above, installed under loading points, protect belt from laceration and carcass failures.

For the complete story on these cost-cutting idlers, mail the coupon for your copy of Bulletin No. 463R.

These Rex Quality Features Add Life to Your Conveyors



1 Triple labyrinth grease seal . . . dust stays out, grease stays in.

2 Tapered roller bearings, deadshaft type mounting, oversize capacity.

3 Unit mounting for bearings for positive alignment and minimum friction.

4 Heavy duty one-piece welded steel construction for maximum roll life.

CHAIN BELT COMPANY 50-200
1604 West Bruce Street
Milwaukee 4, Wis.

Gentlemen:
☐ Send me my copy of Bulletin No. 463R.
☐ I would like to see a Rex Field Sales Engineer.

Name.....

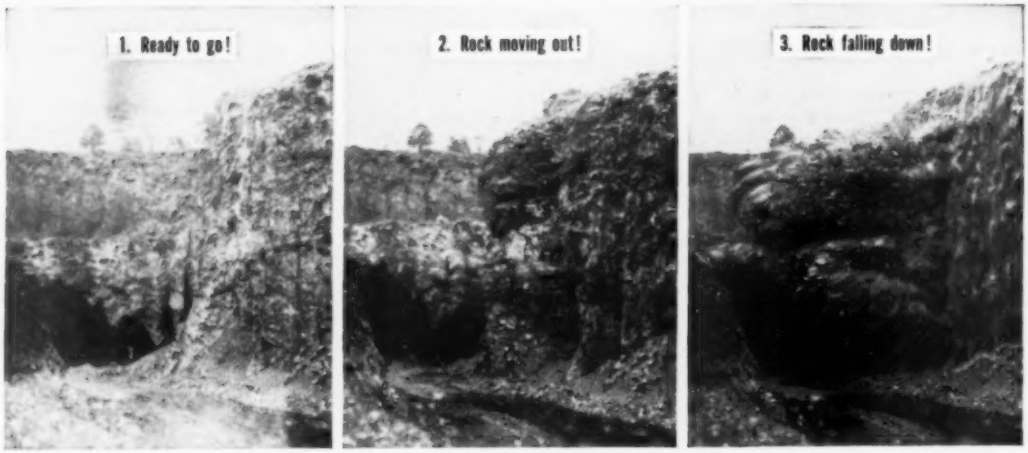
Company.....Dept.....

Address.....

City.....State.....

CHAIN BELT COMPANY REX BELT CONVEYOR IDLERS

No Wasted Gases Spouting In This Shot!



Machine-gun Camera Shows Blasting Control with **ROCKMASTER "16"** Blasting System

We didn't just "happen" to catch a picture of this blast at the right time! Actually, we got over 15 photos of this blast, using a special "machine-gun" camera. The photos here are spaced at ⅔ second intervals. They give positive proof that the Rockmaster split-second delay blasting system can give the kind of *blasting control* that blasters dream about.

For example:

CONTROLLED *Force*—You pay for the energy of explosives gases. You want them to w-o-r-k on your burden—not be wasted in the air. There's not a sign of wasted gas in this shot, even when the rock has moved clear out and is ready to drop.

CONTROLLED *Throw*—Not a rock appears above the top of this 180-foot face. You get your rock in high or shallow piles, against the face or away from it—*as you want it*—with the Rockmaster system, because the system is adjustable to fit *your requirements.*

CONTROLLED *Breakage*—Rock ready for the shovel! You can see it without a doubt in photo No. 3. And if you're interested in stripping coal and getting bigger lump—Rockmaster can often help you do that, too—with substantial savings in your explosives costs.

For rock, coal, ore—on the surface or underground

Write for your copy of the Rockmaster "16" booklet showing how *you* can profit through use of the correct members of the series of 16-split-second delay electric blasting caps, with the Rockmaster system of explosives choice and loading methods. Our technicians will be glad to assist you in applying Rockmaster to your operations.

ROCKMASTER: Reg. U.S. Pat. Off.

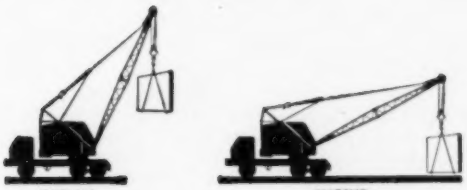
ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

Power up . . . *and power down*

as you boom, as you hoist, as you swing



ENGINE RAISES and . . .

ENGINE LOWERS

IT'S the "down" that's important! That's when you need absolute control, smoothly variable speed, positive safety.

You get all three in Link-Belt Speeder. For the Independent Rapid Boom Hoist is independent of all other operations. It can be operated up or down under power independently of or simultaneously with other machine operations. The load moves smoothly. No jerks, no slips. You can inch it along or whiz it up and down . . . spot it on a dime! And for *extra* safety, there's a safety locking pawl and friction brake.

Many other features make Link-Belt Speeder Shovel-Cranes outstanding for high production, low-cost performance. Link-Belt Speeders do more work, more kinds of work, more of the time.

After 4 years of cement plant service the only repairs needed for this 20-ton HC-70 truck-crane were new rings for the engine! Here the machine is shown in a typical truck-crane operation . . . unloading gravel. The HC-70 is ideally suited to such work, being designed specifically for truck-crane operation. It has such features as walking-beam action on rear wheels, removable rear outriggers and high retractable gantry. Owners are Blythe Brothers Co., Charlotte, N. C.

12,274

LINK-BELT SPEEDER
CORPORATION

Builders of the most complete line of shovels, cranes and draglines
CEDAR RAPIDS, IOWA

THE NEW INTERNATIONAL LOADSTAR

is built for a long, hard future

Model for model, Loadstars are the most rugged of all the rugged trucks in the International L-Line.

There's a special reason why this is so. Right from the drawing board stage, Loadstar models are specialized for work on assignments that give trucks a real beating.

You get a truck built for rough work

It's no wonder Loadstars thrive on hard knocks. Inverted "L" type frame reinforcements, heavier rear springs, and oversize rear axles are among the "geared for punishment" features that make them more than a match for the toughest jobs. Here is heavy-duty engineered ruggedness at its rugged best.

You get extra savings

Just wait till you find out how much lower operating and maintenance costs can be when you have a Loadstar. You get the kind of savings that have kept Internationals first in heavy-duty truck sales for 18 straight years.

You get new ease of handling

You get in and out of tight spots with ease. Shorter wheelbases, new wider-tread axles, and steering improvements galore assure you easy turns in the shortest practical circles.

You get a cab-full of comfort!

Tough jobs aren't quite as tough for the man behind the wheel of a Loadstar. He rides in the Comfo-Vision Cab—"roomiest on the road" . . . gets full front visibility through a one-piece, curved Sweepsight windshield . . . enjoys more positive control from a more comfortable position.

There's a Loadstar model just right for your job

Get complete information from your nearest International Truck Dealer or Branch.

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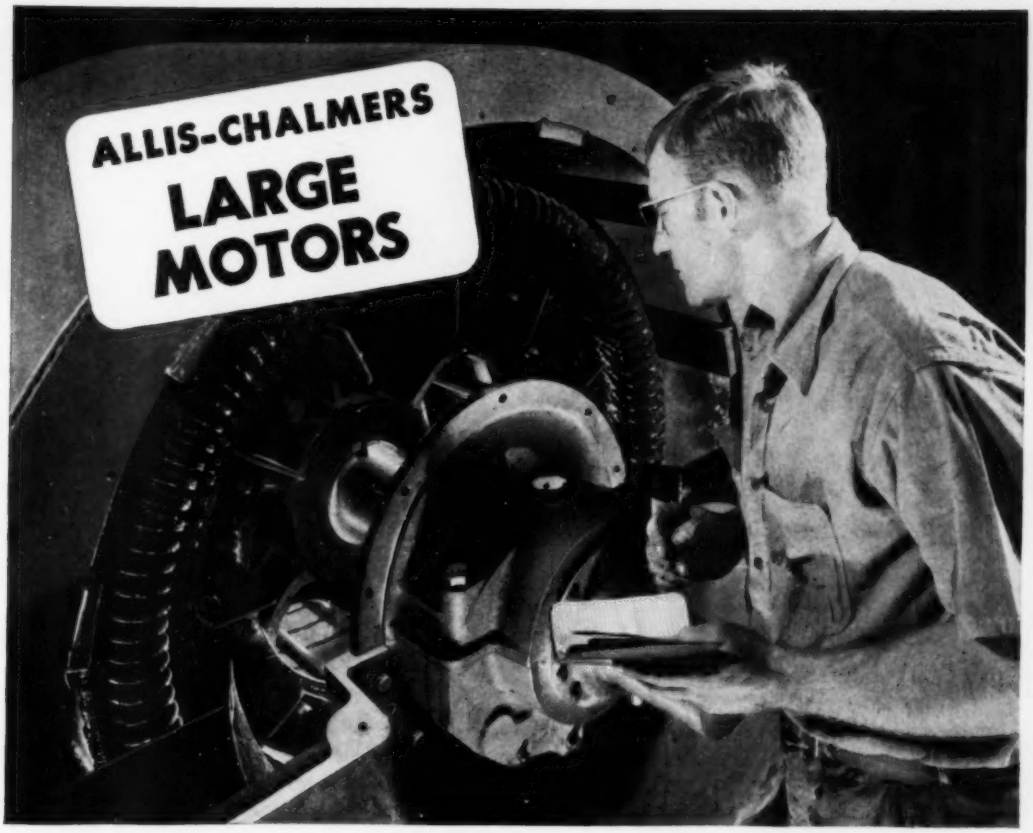
INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY CHICAGO



HOW'S THIS FOR Accessibility?

ONE MAN can perform all routine maintenance jobs on this brand new line of Allis-Chalmers large motors. He can remove the upper halves of the end brackets and air baffles and reach right inside the motor with his vacuum cleaner or air hose. There is plenty of room to reach up back of the stator core through air discharge openings in the stator yoke.

Bearings Protected

The capsule-type sleeve bearings need not be opened up and exposed when the end bracket halves are removed. The bearings are protected from abrasive dust and dirt while the motor is being cleaned. This eliminates the work usually required to dismantle the bearing, clean and reassemble it during routine maintenance.

Easy Installation

Large stator air discharge openings with removable louvers allow ample room to use an electric or air drill for doweling and bolting the motor to the foundation. These large discharge openings plus adequate air intake openings in the end bells provide cooling air at low velocities.

Sleek Appearance

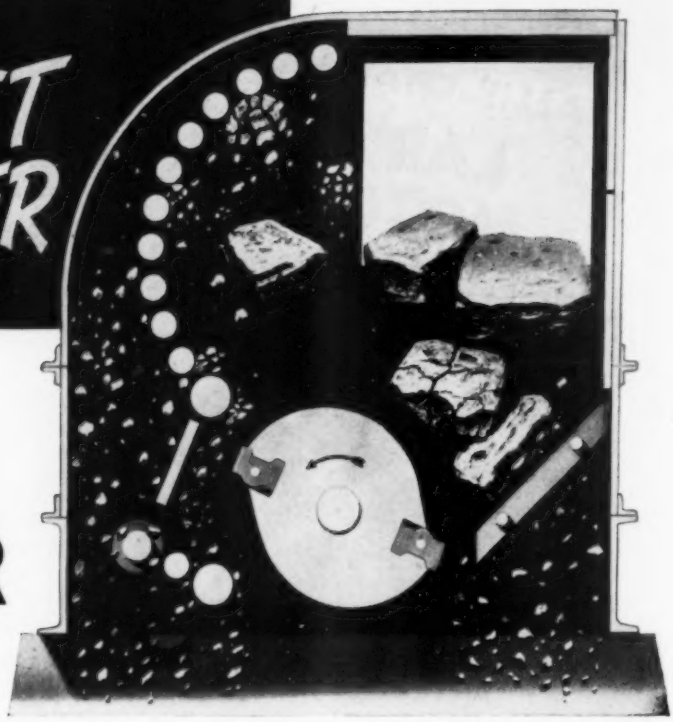
You'll be proud of the appearance of the new Allis-Chalmers motor in your plant, too. Clean, simple lines and smooth contours give outward confirmation of its inner strength.

These new design Allis-Chalmers drip-proof and splash-proof bracket bearing squirrel-cage induction motors are built in sizes from 60 hp at 300 rpm to 1500 hp at 1800 rpm. Ask your Allis-Chalmers representative to show you the details of this exceptional new motor or write Allis-Chalmers, Milwaukee 1, Wisconsin for Bulletin 05B7542. A-3251

ALLIS-CHALMERS

NEW IMPACT CRUSHER

The ROCK BUSTER



Cross-section view tells the story. This NEW Jeffrey Impact Crusher reduces material while in suspension by means of high-speed, 2-ton Rotor, perfectly balanced. Full width stationary and reversible Hammers of heavy cast Manganese steel. Capacity from 60 to 250 tons per hour.

Material fed into side (see photo left) onto a sloping grizzly of desired spacing, which by-passes fines and directs over-size into path of rotor. Cubicle product ranging from 1" to 4" in one pass. Finer sizing possible. Breaker bars adjustable. 30" x 30" opening only restriction to size of feed.

Send for Bulletin No. 827 which goes into detail . . . gives typical screen analysis on 12" limestone. Write today.

Type 303 for reducing hard, friable materials

THE JEFFREY MANUFACTURING COMPANY

Established 1877

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Jeffrey-Galion (Pty.) Ltd., Johannesburg, S. A.
The Ohio Malleable Iron Co., Columbus, Ohio
British Jeffrey-Diamond Ltd., Wakefield, England
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Complete Line of Material Handling, Processing and Mining Equipment

February 1951

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT AND QUARRY

STEARNS ZIPPER—

"THE MACHINE in the low-priced field!"

EXTRA HIGH PRODUCTION—EXTRA LOW PRICE!

EXTRA HIGH QUALITY BLOCK—Stearns 15, 50 and Joltcrete quality! "Smooth Pressed Top."

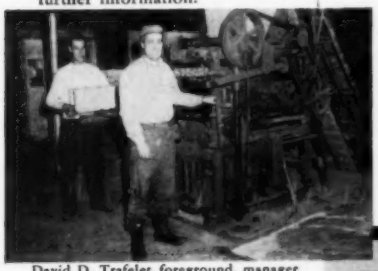
EXTRA RUGGED—The sturdiest, most trouble-free, small, concrete-block-making machine on the market! Simplified construction.

EXTRA SMOOTH OPERATING—Manually-controlled, power-operated, or semi-automatic at slight additional cost.

EXTRA EFFICIENT—No waste motion—human or mechanical. Finest electrical equipment, anti-friction bearings, cored pallets, relineable type mold box. Every part easily accessible.

EXTRA EASY TO INSTALL—Extra compact. Only 6′ x 4′ x 6′. It always fits.

THE ONE-MAN STEARNS ZIPPER HAS BEEN TESTED AND PROVED in accordance with Stearns policy. Write for further information.



David D. Trafelet, foreground, manager of the East Lansing, Mich., plant, and his outstandingly successful and profitable ZIPPER.

MAIL ADDRESS
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EAST LANSING, MICH.

ATLAS BRICK AND BLOCK CO.
Park Lake Road
Phone 8-1913
EAST LANSING, MICHIGAN

December 15, 1950

Mr. C. F. Rowell
Vice-President in Charge of Sales
Stearns Manufacturing Company, Inc.
Adrian, Michigan

Dear Mr. Rowell:

It is indeed a pleasure to report to you on the remarkably successful and profitable operation of your one-man Stearns Zipper. We have had one of these sturdy, compact, smaller machines in our plant since August 10, 1950, and have found is satisfactory in every way.

With one operator, we average 270 sharp, square, dense, clean-looking blocks per hour of the same high quality as those produced by the Stearns 15, 50 and Joltcretes. The loss from culls is practically nil, and those finished tops make a big hit with all our customers.

With the Zipper we get 10% more blocks per sack of cement, using the same aggregate as always, and I firmly believe that using light weight aggregate our production rate would increase by 20%.

For the benefit of operators who are not satisfied with their production rates or the quality of their block and for those who are thinking about going into our business with a small cash outlay, I'd like to repeat what I told you on your last visit:

"Your Stearns Zipper is the ideal concrete block making machine for the small plant making up to 2500 units per day. It is the machine in the low-priced field."

Very sincerely,
David D. Trafelet
Manager

STEARNS MANUFACTURING COMPANY • INC
ADRIAN • MICHIGAN

MODERNIZE WITH A STEARNS! BACKED BY MORE THAN A QUARTER-CENTURY OF KNOW-HOW!

STEARNS 15 STEARNS 50 JOLTCRETES CLIPPER STRIPPERS MIXERS SKIP LOADERS TURNTABLES SINTERLITE

Makes superior concrete products

Plants using Duraplastic report savings because of fewer culls and throw-backs, less breakage in handling of green products. Edges and corners are clean cut and truer. Appearance and face-texture are generally improved. Finished units exhibit greater resistance to passage and absorption of water.

Feeds easily through machine

Duraplastic air-entraining portland cement permits use of a damper mix. Manufacturers find this mix more cohesive, more "rubbery." It holds together better and feeds easily through machines. Duraplastic is ideal for pipe, brick, block, drain tile, silo staves and many other products.

YET DURAPLASTIC* COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

OFFICES: *Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.*

"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

ATLAS® **DURAPLASTIC**

AIR-ENTRAINING PORTLAND CEMENT

Makes Superior Concrete Products at No Extra Cost

PQ-D-115

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

NEWS OF CONCRETE MANUFACTURERS

A.C.P.A.'s 43rd Convention Promises A-1 Program In New York, March 1-3

According to advance notices sent out by the American Concrete Pipe Association, the 43rd convention of that organization, scheduled for March 1, 2, and 3 at the Waldorf-Astoria in New York, will hit a new high in convention history. In addition to the program of talks, discussions, and other "business" features planned, a top-notch lineup of extra-curricular activities has been arranged. Here's the way it goes:

March 1—Board meetings and registration, followed by a cocktail-reception party given by the Lock Joint Pipe Company and the Universal Concrete Pipe Company.

March 2—For the ladies, a tour of New York City, with luncheon in Radio City as guests of the American Concrete Pipe Association.

March 3—Cocktail party given by the manufacturers of welded wire fabric, followed by a dinner-dance, with entertainment.

Members planning to attend the convention are urged to send in their reservations promptly.

Kentucky Concrete Pipe Co. To Open Plant at Paducah

Paducah, Ky., is the site of a new branch plant of the Kentucky Concrete Pipe Company of Frankfort, Ky. The firm has combined its resources with the Egyptian Concrete Company of Salem and Metropolis, Ill., a spokesman of the concern announced.

The Kentucky Concrete Pipe Company formerly operated a plant in Paducah, and has recently manufactured pipe in plants at Lexington, Louisville, and Owensboro. H. D. Palmore, formerly chief engineer for the Kentucky Highway Department, is president of the firm. Russell Davis of Lexington will be the sales manager at Paducah.

The Metropolis, Ill., plant of the Egyptian Concrete Company, is presently being improved and enlarged. Added to the facilities will be a complete new pipe machine unit and steam-curing rooms. Production is expected to be virtually doubled after the expansion program has been completed.

D. D. Bryan Presents Talk Before Building Suppliers

Upon the occasion of the 1951 convention of the Michigan Builders Supply Association, held in Lansing on January 8 and 9, D. D. Bryan, advertising manager of the Besser Manufacturing Company, presented an address on sales promotion of concrete masonry.

Mr. Bryan's talk was followed by a discussion period. The speaker stressed the place of the supply dealer in publicizing and selling concrete units. A Besser display was exhibited during the session.

Koenig Coal & Supply Co. Celebrates 80th Anniversary

1950 was an important year for the Koenig Coal & Supply Company of Detroit, Mich. It marked the 80th anniversary of the founding of the company by Peter Koenig in 1870.

Still operated as a family business, headed by second- and third-generation members of the clan, the concern has added building supplies to its original line of coal. In 1921, they opened a gravel pit at Oxford, Mich., and began sand dredging operations on the St. Clair River. Today the pits are producing at the rate of 4,000 tons per day. It was in 1932 that Koenig inaugurated its production of ready-mixed concrete, for which it now operates a fleet of 50 transit-mix trucks.

Coming Events

February 12-15, 1951 — New Orleans. 21st annual convention, National Ready Mixed Concrete Association. Roosevelt Hotel.

February 20-22, 1951 — San Francisco. 47th annual convention, American Concrete Institute. St. Francis Hotel.

February 28 and March 1, 1951— New York. Second annual convention, American Concrete Pressure Pipe Association. Waldorf-Astoria Hotel.

March 1-3, 1951—New York. 43rd annual convention, American Concrete Pipe Association. Waldorf-Astoria Hotel.

March 19 and 20, 1951—Chicago. Annual convention, Wabash Valley Ready Mixed Concrete Association. Drake Hotel.

March 22-24, 1951—Washington. Annual convention, Autoclave Building Products Association, Statler Hotel.

Pst! Have You Heard? Go-Corp Gossip Buzzes For the First Time

Go-Corp Gossip, snappy publication of the Gene Olsen Corporation, arrived with the new year. The first edition of the *Gossip* promises a twelve-times-a-year palatable portion of mixed rations — spiced fun, facts, and philosophy.

Says Gene Olsen in his editorial, "*Go-Corp Gossip* will keep you informed regarding our services and, we believe, bring you a chuckle or moment's relaxation in a busy day."

Indicative of the sheet's catholic character are the labels of various departments—"Your Brain Budget", "Above the Hullabaloo" (the so-what department), "The Human Race", a Dale Carnegie corner, ad the "Sportscope". PIT AND QUARRY's staff offers the newcomer congratulations and best wishes for a long and successful career.

Universal's No. 34 Plant To Open Soon in Paducah, Ky.

Paducah, Ky., is the city chosen by the Universal Concrete Pipe Company's officials for the next plant of the Columbus, O., firm. According to plans announced by company spokesmen, the plant will be in operation by April.

Universal, which now operates 33 other plants in various cities, will manufacture a line of concrete blocks and pipe at Paducah, employing approximately 40 persons.

Junior Partner Runs Plant In Father-and-Son Enterprise

At Emporia, Kan., the Penny Ready Mix Concrete Company, a father-and-son enterprise, is being managed by Charles Penny, the junior member of the firm, a young college graduate who may soon be called into the armed services.

M. N. Penny, father of the young manager at Emporia, has operated a plant at Lawrence for the last 25 years. Production was initiated at Emporia last June.

Big Concrete Mixer Burns After Kerosene Explosion

On January 3 a fire all but destroyed a $50,000 automatic concrete mixer at the Pine Bluff Sand and Gravel Company's plant, Pine Bluff, Ark. An employee was filling a kerosene stove tank in the lower part of the unit when the stove exploded, throwing flaming oil into the machinery overhead.

The intense heat melted some of the unit's steel structure, and firemen worked for some time before bringing the blaze under control.

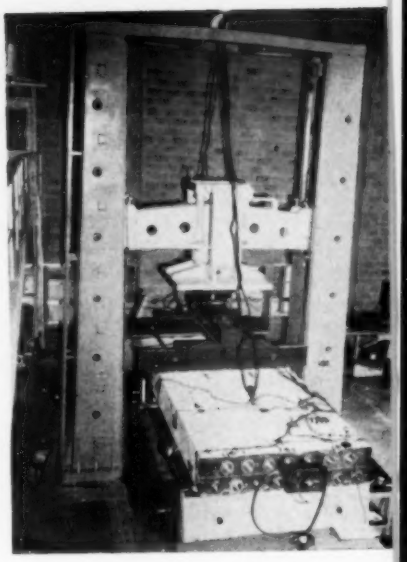
Half-Slice Prestressed Slab Holds Out to 480,000 Mark in Load Test

IN tests of immediate interest to engineers and producers of concrete products in this country, a prestressed concrete railroad trestle slab only about one-half the depth of a conventional reinforced concrete slab of the same length and width was loaded to failure at the Portland Cement Association's new Research and Development Laboratories located at Skokie, Ill., near Chicago.*

The full-sized trestle slab measured 25 ft. in length, 7 ft. in width and 1½ ft. in depth, and was designed for an E-72 live load plus full impact. It was built at the P.C.A. laboratories in cooperation with the Association of American Railroads and the John A. Roebling's Sons Company. It weighed 20 tons and contained 10 cu. yds. of concrete, and had a strength of 7,000 p.s.i. at 28 days. Prestressing was done with 15 bridge strands, 1⅜ in. in diameter, post-tensioned to 120,000 p.s.i.

The prestressed slab was then loaded to full design load in the 1,000,000-lb. compression testing machine, after which the load was increased until the first hairline cracks appeared. This occurred at approximately 1½ times live load and impact. Upon removal of the load, the cracks disappeared entirely, giving a good indication of the elasticity of the slab. Finally, the slab was loaded to failure. This occurred in the upper portion of the slab at 480,000 lbs., or about 2.8 times the design load.

Throughout the test, readings of the 100-odd strain gauges located throughout the slab were recorded from the central "switchboard", especially developed for the tests. Deflections of the slab were also noted. The P.C.A. announced that a full report of all results will be issued as soon as a complete analysis of the data obtained can be made. However, the loading demonstration seemed to substantiate the belief of engineers that this type of reinforced concrete will soon find wide application in this country, as it already has in Europe.



• Right: A view from the second floor of the laboratory, affording some conception of the size of the operation. Note the sockets in the end of the slab and the hydraulic jack mechanism, protruding from one of them, used to control prestress.

*See Avery, William M., *Portland Cement Association's New Laboratories*, PIT AND QUARRY, June, 1950, page 63.

• Responsible for arranging and executing the test were: L. H. Corning, manager, structural and Railways Bureau, Portland Cement Association; Frank T. Sheets, president, P.C.A.; J. R. Janney, assistant engineer, P.C.A. laboratories and project leader of the test; Miles D. Catton, director of development, P.C.A.; C. C. Carlson, manager of structural development, Development Department, P.C.A.

Conotex Company Launched By D. J. Kuchnicki at Abilene

Abilene, Tex., welcomed a $200,000 industry recently when the Conotex Company, producing lightweight concrete masonry units, went into production. The new venture, headed by Don J. Kuchnicki, general manager, covers six acres and has a payroll which will amount to $80,000 per year. The plant has a capacity for products valued at $1,000,000 annually in gross sales.

The lightweight aggregate used in the units is supplied by the Featherlite Corporation at Strawn, Tex. It is composed of expanded shale. President of Featherlite is Jack Frost; Alex T. Mickle is executive vice-president.

Mr. Kuchnicki closed out his one-third interest in a firm at Alpena, Mich., to engage in business in Texas. E. E. Brown, N. A. Brown, and R. P. Brown, proprietors of the Texas Concrete Block Company at Lubbock, Tex., are backers of Conotex.

Sutherland Ready-Mix Sold To Moscow Concrete, Inc.

Sale of the Sutherland Ready-Mix plant to Moscow Concrete, Inc., for a reported price of $48,000 was recently disclosed at Moscow, Idaho, by R. H. Sutherland of that city, who will devote his time to Commercial Builders, Inc., of which he is president.

Three months previous to this transaction Mr. Sutherland sold his plant at Pullman, Wash., to the Doten Transit Mix Company. He stated, however, that he will retain his original plant at Colfax, Wash., which was founded in 1945.

Leo McCarty, owner-president of Moscow Concrete, Inc., founded the Inland Concrete Products plant in Moscow in 1945, later adding ready-mix to his line when Fred Simkin became his partner. The following year Mr. Simkin sold out his interest. Moscow Concrete, Inc., was incorporated in 1948.

Richard J. Schone, 66, operator of the Concrete Products Manufacturing Company of Golden, Ill., was the victim of a fatal accident on December 23, 1950. Mr. Schone was driving his dump truck, which went out of control and was overturned after ramming an embankment. He died of brain injuries.

• Left to right: F. D. Anderegg, Pierce Foundation; B. Van der Esch; Carl A. Menzel, Portland Cement Association; F. P. Bos; L. A. W. Van Zanten; J. A. Vermey; W. Millenaar.

• Another part of the group (left to right): C. A. De Feber, J. Oosterhuis, P. A. Wernink (team leader), W. F. G. L. Van Smaalen, N. E. Philpot (E. C. A. project manager), L. Jonker, C. H. Van Waning, A. T. Stigler, and C. Smits.

Dutch Industrialists Study U. S. Concrete Techniques

The Marshall Plan swung into action in the concrete products field recently when representatives of the pre-cast concrete industry of the Netherlands made an intensive on-the-spot study of American production techniques. The 14-man group started their extensive 37-day tour last November 8 to observe the various phases of the American concrete industries, under the technical assistance of the Economic Cooperation Administration, in an effort to meet their need for higher productivity, due to the increased demand for construction materials in the Netherlands.

Accounting for about 25 percent of the materials used in Dutch home and industrial construction, the Netherlands concrete industries produce pipe, curb stones, beams, roofing slabs, industrial flooring, paving materials, concrete foundation piles, and pre-fabricated houses. In the study of American techniques, the visitors concentrated their attention on labor- and time-saving machinery, training of employees, labor-management relationships, and other methods used in this country to increase output and reduce costs.

During the first three weeks of its tour the group visited and took part in seminars at various plants in the New York and Philadelphia areas. They then traveled to Chicago for conferences with officials of the American Federation of Labor, the United Brick and Clay Workers of America, and with executives of trade associations and trade papers; they also visited plants in this area. After additional plant studies and meetings with representatives of labor and management in the Cleveland area, the tour wound up with five days of conferences with U. S. Government officials.

Visiting representatives of the Dutch concrete industry were: Petrus Adrainus Wernink, (group leader), Carl H. Van Waning, Willem F. G. L. Van Smaalen, Leonardus A. W. Van Zanten, Franciscus Petrus Bos, Adrianus Theodorus Stigler, Cornelis Smits, Aart de Groot, Bastiaan van der Esch, Willem Millenaar, Cornelis Anthonie De Feber, Leendert Jonker, Henrik Roeland Plomp, and Jan Oosterhuis. The tour was under the personal direction of N. E. Philpot of the Arrangements Branch, Technical Assistance Division of the E.C.A.

U. of Nebraska Laboratory Gets Big Testing Machine

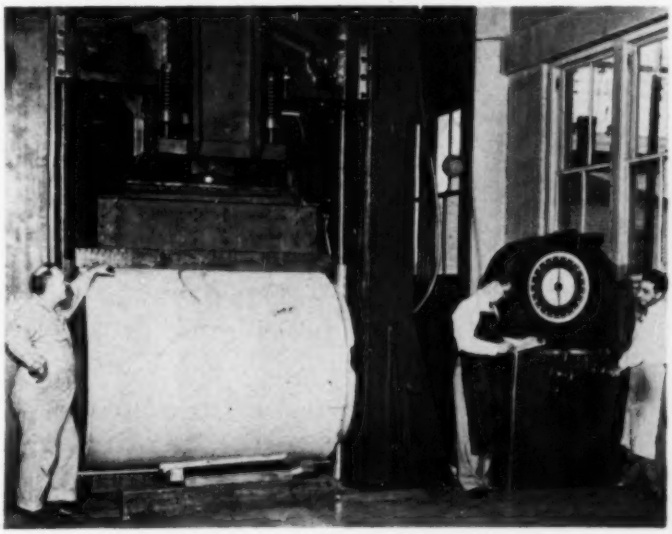
Newly installed in the Materials Testing Laboratory at The University of Nebraska, Lincoln, Nebr., this 400,000-lb. compression testing machine is going to play an important part in both classroom work and research work, according to E. J. Marmo (right), professor of engineering mechanics.

The new machine, built by The Baldwin Locomotive Works of Philadelphia, is of welded construction except the cast-steel crosshead. It is 21 ft. high and weighs 75,000 lbs. Test structures may be as large as 15 ft. high and 6 ft. wide. With suitable framework supports, structures as long as 40 ft. may be tested. In such tests the allowable height of the structure is reduced by the height of the framework.

Compressive test loads are applied by a double-acting hydraulic ram on the crosshead, which has a 10-in. stroke, a loading speed of 3½ in. per minute and return speed of 5 in. per minute. The design avoids the usual pit under the machine for operating mechanism.

• This 400,000-lb. compression tester will handle samples up to 15 ft. high and 6 ft. wide.

Arkansas - Louisiana - Texas Perma - Stone, Inc., better known as Ark-La-Tex, Inc., of Hot Springs, Ark., announced on January 14, 1951, that its Little Rock subsidiary has opened for business in its new location at 1311 West Capitol Avenue, under a new name, Perma-Stone of Arkansas. The concern, headed by J. M. Reed, president, is under the management of John Menasco. The firm was formerly located at 1005 Broadway.



Wamix, Inc., Completes 1,000-Yd. per Day Plant To Meet Dallas Demand

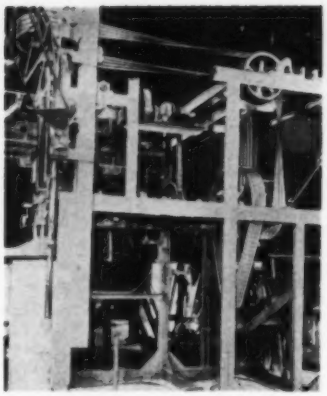
Formally opened in November, 1950, the new Wamix, Incorporated, 1000-cu. yd. per day central-mixed concrete plant is now in full operation in the Trinity industrial district of Dallas, Tex. Wamix, Inc., was first formed in March, 1948, by Tom Amis and O. B. English, and the plant began operations at that time at its old location with one 1-cu. yd. mixer, four trucks, and a 250-cu. yd. daily capacity.

In 1949, it became apparent that the tremendous building program of Dallas would warrant a definite increase in the capacity of the old 250-cu. yd. per day plant. Construction on the new installation began last summer on a 4-acre site at 2221 Irving Blvd. in Dallas, and was finished last November. The end result represents a complete and carefully-engineered installation. (See illustration below.)

Heading the equipment list are the two 2-cu. yd. Koehring tilting mixers which empty into a 6-cu. yd. collecting hopper. From the hopper, an air-controlled clamshell gate allows mixes to be gravity-fed to waiting Wamix trucks, of which there are now seven in operation.

One of the features of the plant is the automatic batching system. Each material (water, cement, sand and gravel) is weighed out automatically in its own individual hopper on its own individual scale. In addition, an automatic dispenser provides the desired quantities of air-entraining agent for each batch.

Accompanying equipment includes a 7,000-bag cement bin, a 490-ton material bin, and a 300-ft. belt conveyor for gravel and sand transfer. The plant is equipped to receive 1,600-bag capacity hopper-bottomed cars on its special railroad spur. The cement goes from the cars to an undertrack screw conveyor and then to the cement bin via bucket elevator.



• The improved belt arrangement of the Zeidler plant (see story below) which cut costs, upped output.

Redesigned Belt Drives Cut Costs, Hike Production

Belt trouble at the Zeidler Concrete Products Machinery Company in Waterloo, Ia., was giving the production picture at this plant too many "lows". On a machine which turned out 30-in. pipe the flat belts had to be kept so tight that the splices pulled loose after a short time, causing the belts to stretch and flop, eventually to be caught in the frame and damaged.

A conference between Zeidler's engineer, Ralph Whannel, and engineers of the Gates Rubber Company resulted in the design of a better belt arrangement for the machine, including a mule pulley drive and a primary drive. Because all the Gates sheaves are grooved, the V-belts cannot slip off the pulleys, and with positive grip in the sheave grooves, the machine now can handle 36-in. pipe without difficulty. Other desirable results—lower maintenance costs, higher production rate.

Tru-Mix Concrete, Inc. Gives Versatile Service In Portland, Ore., Area

From a small beginning two years ago, Tru-Mix Concrete, Inc., has grown to represent an important segment of the ready-mixed concrete industry in Portland, Ore.

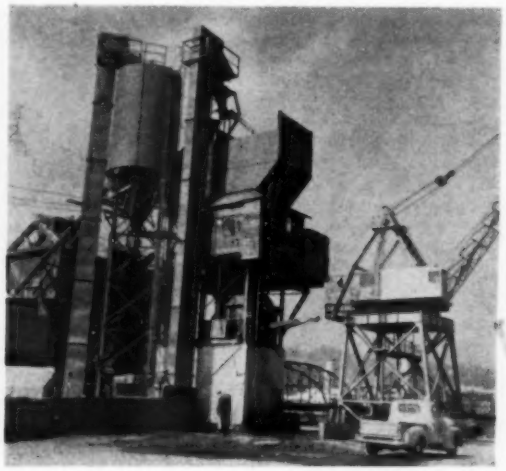
In May, 1950, the company began batching and mixing its product in a new Noble plant, erected on the property of Nickum & Kelly on the Willamette River waterfront. The Nickum & Kelly firm is one of Portland's pioneer dealers in sand and gravel and supplies the aggregate needs of the new Tru-Mix operations from its adjacent stockpiles. (See PIT AND QUARRY, October, 1950, page 57.)

The Tru-Mix plant is a flexible set-up which can produce either mixed concrete or a dry-batched product. The four-compartment 150-ton elevator-fed bin usually stores sand, and 1½-in. and 1-in. gravel, with the fourth compartment reserved for special sizes to meet specific job requirements. Bulk cement is contained by a 500-bbl. silo along-side. A 3-cu. yd. batcher and a 3-cu. yd. Wagnermobile mixer are included in the new equipment. The company operates seven Jaeger 3- and 4½-cu. yd. truck mixers, with the drums accepting maximum loads of 4½ and 6 cu. yds., respectively, after about 1 minute of premixing.

Because of the gain in strength and improved workability, it has become almost standard practice to use Master Builders Pozzolith; many engineers and builders specify the admixture in their orders for concrete. Walter Ware is president of Tru-Mix Concrete, Inc. Norman Dash is plant manager and engineer.

• Below: New central-mixing plant of Tru-Mix, Inc., on the Willamette River, Portland, Ore. The old plant (left) is used for dry-batching into dump trucks. Whirley crane (right) unloads sand and gravel from barges at dockside.

• Recently opened new facilities of Wamix, Inc., Dallas, Tex., with its 7,000-bag cement bin, 490-ton materials bin, and 300-ft. belt coveyor.



Ready-Mixed Concrete Output Reached New Peak in 1950

Survey of Industry Indicates 31,000,000-Cu. Yd. Production—Gain over 1949 Is 15 Percent

ACCORDING to information submitted to the CONCRETE MANUFACTURER by producers in the closing weeks of 1950, the production of ready-mixed concrete for the year must have totaled close to 31,150,000 cu. yds., a gain of about 15 percent over the previous year and a new record for the industry. The total figure represents a gain of approximately 4,000,000 cu. yds. over the previous record set in 1949, when the industry's output amounted to over 27,000,000 cu. yds.

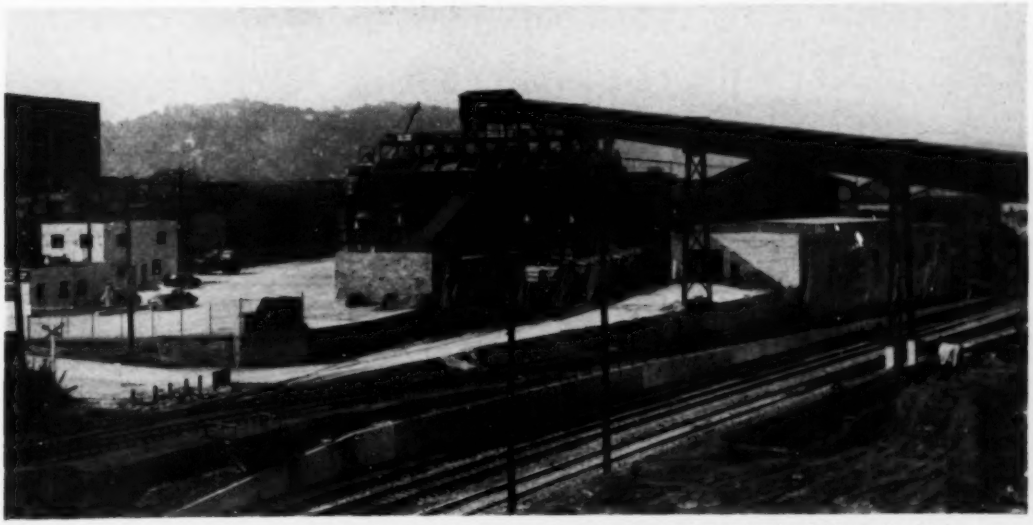
By WILLIAM M. AVERY

Sizable and surprisingly uniform production gains were noted in all sections of the country, and by virtually all classes of producers. Paralleling the sharp jump in productivity, the survey also shows a rise of 10 percent in number and 13½ percent in capacity of trucks operated by the industry. Average selling price for the entire reporting group increased about 3 percent, or approximately 33 cents per cu. yd., and average wages were up 6 percent, or roughly 8 cents per hour. These and other significant trends are discussed in detail under suitable headings.

Reference should be made to the unusually high percentage of returns received in this publication's survey of 1950 production. Questionnaires were mailed to 420 producers, and complete replies were received from 118, representing a return of almost 28 percent. In order to have results available for publication in February, information concerning production, prices, wages, and fleet capacities was requested for the first 10 months of the year.

The reporting group showed output of 5,882,000 cu. yds. for the first 10 months of 1950, as compared with 5,011,000 for the corresponding period in 1949. Thus the survey represented approximately 20 percent of the industry's total production in 1949, or a sample two to three times larger than is normally regarded as necessary for projection. The actual reported increase in output for the first 10 months of 1950 was over 17 percent. In applying the smaller figure of 15 percent to determine estimated total production, due consideration was given to the general slow-down in construction activity in the last two months of the year.

Based on the usual ratio of 5 sacks of cement per cu. yd. of concrete, the ready-mix industry in 1950 consumed over 38,900,000 bbls. of portland cement, or a little over 17 percent of the estimated 227,000,000 bbls. shipped during the year. This compares with estimated consumption of 33,000,000 bbls. in 1949, which represented about 16 percent of total cement shipments in that year. It seems fairly clear from this that the ready-mixed concrete industry received a generous share of the approximately 21,000,000 bbls. by which the cement industry increased shipments in 1950. Nevertheless a considerable number of ready-mix producers reported that their operations in 1950 were curtailed by lack of cement. The survey findings on the effects of the cement shortage are covered below.



• A general view of the Iron City Sand & Gravel Corporation's new ready-mixed-concrete plant at Pittsburgh. The enclosed belt conveyor at the right supplies the bins from the company's aggregate yards located on the south bank of the Monongahela River.

Production Distribution Southern producers of ready-mixed concrete showed the largest percentage gain in output. Their production for the first 10 months of 1950 was almost 25 percent higher than for the same period in 1949. Midwestern producers, who accounted for over 30 percent of the total production covered by the survey, indicated an increase of approximately 20 percent. Among plants in the West, with an output of almost 2,000,000 cu. yds. in the first 10 months of 1950, production was up about 15 percent. Eastern plants showed a rise of only 10 percent, and since this group accounted for almost 22 percent of the total production reported, its relatively poor showing was an important factor in reducing the nationwide estimate.

Truck Fleets In an effort to gauge the ready-mixed concrete industry's growth in respect to capacity, the questionnaire asked producers to list the number and total capacity of truck mixers in service on January 1, 1950, and on November 1, 1950. The reporting group showed 1,597 units, with a total capacity of 5,720 cu. yds. in service at the start of the year, compared with 1,777 units (total capacity 6,499 cu. yds) in service 10 months later. These figures represent gains of 11 percent in number and 13½ percent in capacity.

Midwestern plants among the reporting group showed a gain of 14 percent in number of trucks, and a gain of 17 percent in total capacity. In the East the numerical and capacity increases were respectively 11 and 12 percent, in the South 9 and 10 percent, and in the West 9 and 12 percent.

The average number of trucks per plant for the entire group increased from 14.0 at the start of the year to 15.1 on November 1. In the Midwest the reporting group showed 12.4 trucks per plant, in the East 14.3, in the South 14.9, and in the West 23.0 on the latter date, the increases in all four sections ranging from 1.0 to 1.5 trucks per plant from the first of the year.

The average total capacity of truck mixers per plant showed a similar rise from about 50 cu. yds. at the start of the year to about 55 cu. yds. on November 1. On a sectional basis the increases were from 37 to 41 cu. yds. in the Midwest, from 54 to 60 cu. yds. in the East, from 46 to 51 cu. yds. in the South and from 82 to 88 cu. yds. in the West.

Average capacity per truck also rose during the year (from 3.59 cu. yds. to 3.66 cu. yds.), continuing the slow steady climb that has been evident for a number of years. Truck capacities increased in the Midwest from 3.22 to 3.31 cu. yds., in the East from 4.16 to 4.22 cu. yds. and in the West from 3.71 to 3.82 cu. yds., while in the South the average remained unchanged at 3.40 cu. yds.

Selling Price The selling price of ready-mixed concrete increased about 3 percent in the first 10 months of 1950. The average for the entire reporting group was $11.02 per cu. yd. on January 1, as compared with $11.35 on November 1. Although many individual producers went through the first 10 months of the year without increasing prices at all, others made sizable increases ranging up to as much as $1.00 per cu. yd.

The survey data show price increases in all sections of the country —from $10.90 to $11.31 per cu. yd. in the Midwest, from $11.08 to $11.21 per cu. yd. in the East, from $11.80 to $12.18 per cu. yd. in the South, and from $10.64 to $10.87 per cu. yd. in the West. It should be particularly noted, however, that even in the Midwest, where the average selling price among the reporting group advanced $0.43 per cu. yd., the increase amounted to

• Central mixing plant and non-agitating fleet of the Fairlawn Supply & Coal Co., Akron, Ohio.

• View of the new 180-cu. yd. per hour central-mixing and batching plant of the Albuquerque Gravel Products Co., Albuquerque, N. M.

less than 4 percent. On the basis of this finding there can be little doubt that the vast majority of ready-mixed concrete producers managed in 1950 to offset a major share of the increased costs of labor and materials by means of greater productivity. It is a fine tribute to the good sense and sound judgment of the industry that savings resulting from increased volume of business have, in effect, been passed on to its customers.

Wages Following the pattern of industry in general, average hourly wages in the ready-mixed concrete industry increased about 6 percent in the first 10 months of 1950. The average for the entire reporting group advanced from $1.33 per hour at the start of the year to $1.41 per hour on November 1. In the Midwest the average increased from $1.38 to $1.47 per hour, in the East from $1.29 to $1.39 per hour, in the South from $1.00 to $1.07 per hour, and in the West from $1.54 to $1.58 per hour.

Detailed inspection of the questionnaires seems to indicate clearly the existence of an inverse relationship between wages and selling price; i.e. that the plants with the highest wages are able to maintain the lowest selling prices. This fact is also borne out to some extent by the average computed for various sections of the country, and it has shown up in other similar surveys conducted by this publication. Its significance is perhaps open to question, since competitive factors have so direct a bearing on both wages and prices, but the fact is noted here for whatever comment it may evoke from the industry.

Cement Supply The questionnaire asked producers to indicate whether or not they lost production in the first 10 months of 1950 due to lack of cement, and to estimate the amount of the loss (if any) in cubic yards. Almost 60 percent of our informants replied that they had indeed lost production as a result of the cement shortage. Not all attempted to estimate the resulting loss in production, but the estimates submitted totaled about 385,000 cu. yds. or a little over 7½ percent of total production for the entire covered group in the first 10 months of 1949, when there was relatively little difficulty in respect to cement supply.

Figures of this sort are extremely difficult, if not actually impossible, to analyze. To begin with, the data consist of opinions rather than facts, since the only way on earth to determine if producer "A" actually lost "X" cu. yds. of production in 1950 due to lack of cement would be to have him repeat the year under the same conditions, but with an adequate supply of cement. Another complicating factor is that some portion of the estimated lost production is undoubtedly picked up by other producers, so that in effect the yardage is not "lost" at all, but is merely transferred to other plants.

For these reasons we hesitate to say flatly, even though our own survey shows it, that the ready-mixed concrete industry could have sold an additional 2,000,000 cu. yds. of concrete in 1950 if there had been no curtailment of production due to lack of cement. We lean toward the view that the actual loss was probably not much in excess of 1,000,000 cu. yds., and that both the cement industry and the ready-mixed concrete industry did a more than creditable job of handling the largest demand for their materials in history. It is estimated that in 1950 the cement industry shipped about 21,000,000 more barrels of its product than in 1949. Almost 25 percent of this additional amount appears to have been delivered to ready-mixed concrete plants.

Outlook for 1951 About half of our informants refused to attempt any predictions regarding 1951, and the remaining half managed to express the full range of emotions—from deep pessimism in the case of very large producers, to high optimism in the case of a few relatively new concerns. Generally speaking, the companies which produced 30,000 cu. yds. or more in 1950 expect some reduction in volume this year, estimates of the amount ranging from 10 to 20 percent. Companies which produced less than 30,000 cu. yds. expect to hold to that level or to make small gains in 1951.

The questionnaire also asked producers about their plans for increasing truck mixer capacity in 1951. About 33 percent of the replies disclosed definite plans for adding to existing fleets, and an additional 7 percent indicated tentative plans contingent on business conditions. The total of planned additions for the entire group amounted to about 450 cu. yds., or almost 7 percent of the 6,500 cu. yds. total capacity which the covered group indicated on November 1, 1950.

New Plants A sizable share of the ready-mixed concrete industry's tremendous output in 1950 came from the new dry-batching and central-mixing plants. A number of the more important new plants were described in detail in these pages during the year. Among them was the highly efficient central-mix plant of the Camden Lime Company of Camden, N. J., which has a capacity of about 2,000 cu. yds. of concrete per day. Early in the year the Iron City Sand & Gravel Corporation of Pittsburgh, Pa., placed in operation what is be-

(*Continued on page* 146)

How the Phoenix Area Became a Prime Block Market in Just Five Years

another ON THE SPOT number

By D. R. EGBERT

IN years to come, when the compilers of statistics attempt to trace the tremendous growth in the use of concrete masonry units for a wide range of bulding purposes, they may well find it necessary to devote a separate chapter to the city of Phoenix, Ariz. For in this budding Southwestern metropolis, in which 98 percent of *all* building construction is masonry, concrete masonry has had an unparalleled opportunity for a show-down slugfest with competitive masonry materials. The results will surely surprise, and will perhaps satisfy, even the most ardent advocates of concrete, for at the present writing concrete block and concrete brick account for a thumping 75 percent of all masonry construction in this predominately masonry city.

It would be a serious mistake, however, to create the impression that Phoenix is unique in its acceptance of concrete masonry. There are many cities in which the ratio of concrete block to total masonry use is as high or higher, and the showing in Phoenix is only about 15 percent above the average for the entire country*. Apart from the unusual predominance of masonry construction, the Phoenix story *is* unique in that the wide acceptance of concrete masonry has come about in the short span of about five years. Whereas in most other cities acceptance of the product came as the result of steady normal progress, in Phoenix it came with a rush.

Although supporting statistical data are lacking, a scant five years ago concrete masonry units were an inconsequental factor in the Phoenix construction picture. Architects and builders were either entirely unaware of the product, or were uninformed in regard to its qualifications as a prime building material. Despite the fact that the city was on the verge of the largest building boom in its history, production of concrete masonry units was at a low level, and the local block industry showed little evidence of either the desire or the intention to nurture the tremendous potential market which existed.

Early in 1945, largely as an outgrowth of activities initiated by a relatively new company, a vigorous merchandising program began to get under way in the Phoenix area. In its initial stages it was primarily a long-range educational program aimed at building officials, architects, contractors, and lending agencies. Its sound objective was to see to it that everyone in these important influencing groups had full knowledge of what could be done, and what was being done in other cities, with concrete masonry units.

The results speak eloquently for the zeal with which this educational

*According to the best available information, concrete block accounted for 64 percent of the total masonry wall volume constructed in 1949.

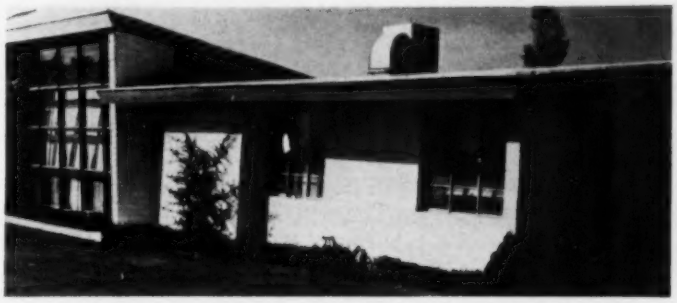
• The storage yard of the Builders Supply Corporation at Phoenix, Ariz., where some 2,000,000 cubed units are kept on hand to supply the tremendous demand.

• Although price was hardly considered in the building of this $50,000 ranch-type home, the architects could find no better material than the same masonry units so widely used in minimum-cost construction.

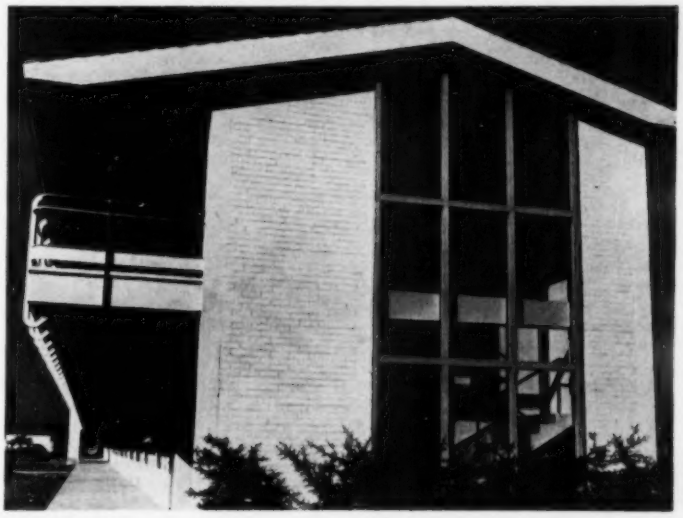
Hard work on fundamentals of merchandising has won full acceptance of concrete masonry

program was carried out, but actually it was not a tough selling job in the strict sense. The very qualities which make concrete masonry an excellent building material in *any* climate make it in every respect an ideal material for virtually all types of construction in the Southwest. It is termite-proof, in a locality in which termites can literally destroy frame structures in a few years. It is sun proof, in a climate in which the combination of intense sunlight and extreme dryness can be almost as destructive as termites. It is vermin proof, in an area which has its full share of scorpions, centipedes, lizards and similar sub-tropical pests. It is fire-proof, in a section that suffers almost chronically from limited water supply, and in which the fire department is as often as not a private business, subject to call by subscribers only. And finally, pumice concrete units, which were introduced in the area at about this time, offered the best insulative protection yet found against the intense summer heat.

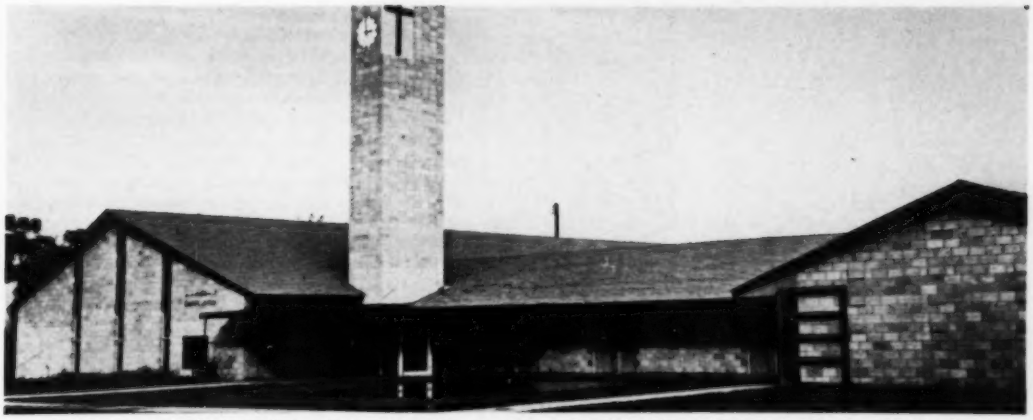
With all these important sales appeals, plus a slight cost advantage over clay products, it is scarcely to be wondered at that sales of concrete masonry units began to climb. As more and more jobs were sold, the local block producers, again bellwethered by one progressive firm, began sending their field representatives to architects and builders for the purpose of offering technical ad-



• Thousands of moderate-priced homes in the Phoenix area incorporate half-height pumice units to obtain the pleasing effect shown here.



• Right: A classroom building at Phoenix College has exposed half-height units in the walls.



• A new church built of standard units has the modern, low lines preferred for almost all types of structures in the Southwest.

• Masonry units construction also predominates in all types of commercial buildings.

vice and service in connection with the use of their products. Largely as a result of this farsighted policy, concrete masonry construction was channelled into attractive patterns that were in full harmony with the locale, and high standards of craftsmanship were established. Many of the concrete masonry buildings put up during the early stages of the building boom in Phoenix became silent but eloquent salesmen for the product.

The merchandising program was soon broadened to cover every conceivable source of new business and to use every available means of sales promotion. Prospective home owners, builders, and architects were exposed to a steady stream of information about concrete masonry through such media as direct mail, newspaper and trade journal advertising, radio programs, and exhibits at state and county fairs and building shows. Special promotional pieces and newspaper advertisements were directed at the farm market, and cities and towns within practical shipping distance from Phoenix were soon included in the program. To handle follow-up on the flood of inquiries that materialized as a result of their broad merchandising program, the local block concerns enlarged their sales and service staffs, so that small prospects and customers could receive the same thorough and courteous assistance accorded to volume buyers. The good will thus garnered, coupled with the inherent merit of the product itself, went far toward establishing concrete masonry as the foremost building material in the Phoenix area.

By Eastern standards, Phoenix is not a large city. Although it has undergone some industrial development since World War II, it is still primarily a winter resort and a health center. In the last ten years the population of Maricopa County, of which Phoenix is the county seat, has increased about 76 percent—from 186,000 in 1940 to 327,000 in 1950. With a large share of this tremendous growth concentrated in the post-war half-decade, a building boom was inevitable. By means of the vigorous merchandising program outlined above, a large share of the resulting demand for building materials went to the local block industry.

Although productive facilities were expanded as rapidly as possible to meet the sudden influx of orders, most producers in the area have had sizable order backlogs for several years. At least indicative of what has happened to the market in general is the experience of a company which was organized only six years ago. Today this concern, the Builders Supply Corporation, operates in Phoenix alone the equivalent of five modern 3-at-a-time Besser Super Vibrapacs. These machines are currently operating at the rate of 7,000,000 cycles per year on a 3-shift basis.

The half-high 8- by 4- by 16-in. block finds greatest favor in the Phoenix area, accounting for about 90 percent of the total sales of all types of concrete masonry units. Standard 8- by 8- by 16-in. units, regular concrete bricks, Roman brick, and random ashlar units are also used to some extent. Lightweight pumice units account for all but a very small share of total production in the area.

Although in the last two years considerably more than half of all the concrete masonry units produced in Phoenix have gone into residential construction, the market is actually as varied as any to be found in the United States today. Pumice masonry units are used in tremendous volume in every conceivable type of structure required in a thriving, expanding community — in schools, hospitals, and churches, in industrial and business structures, and in apartment buildings, resorts, motor courts, theatres, and hotels.

One factor that goes far toward creating the impression that Phoenix is a concrete masonry town is the extent to which exposed units are employed in every type of structure. In the residential field this trend is evident throughout the entire price range, from the simplest low-cost building to the most elaborate homes in the $50,000 to $100,000 class. Architects have shown little inclination to use the product for back-up, or to attempt in any way to conceal or disguise it. On the contrary, there is evidence everywhere of a refreshing willingness to capitalize on the inherent eye-appeal and the clean lines imparted by concrete masonry. This has resulted, particularly in the newer sections of the city, in a degree of structural and architectural harmony that is seldom found in large communities.

Despite the high level of demand for their products, the forward-looking block manufacturers in Phoenix have not relaxed their efforts in the field of merchandising. Service and good will calls on architects and contractors and follow-up calls on the hundreds of concrete masonry jobs in progress give full employment to salesmen during periods when additional orders are only a source of embarrassment. Nor has the unprecedented demand resulted in the slightest relaxation of quality standards; on the contrary, if there has been any change, it has been toward the tightening of standards, particularly with respect to uniformity of product. In this respect the Phoenix producers have simply shouldered the responsibilities that inevitably accompany success in any field of endeavor.

Although local conditions in Phoenix undoubtedly favored the development of a sizable market for concrete masonry units, there is no reason at all to believe that the same basic approach will not yield comparable results in other cities. In every growing community there exists, as there did in Phoenix five years ago, a potential market for concrete masonry. Nobody has yet found, or is likely to find, a better method for converting a potential market into actual sales than did the block producers of Phoenix. The principles of sound merchandising which they applied to their problem are as well known and as thoroughly documented as the multiplication tables.

Output of Concrete Pipe Hit New Record of 9,025,000 Tons in 1950

• One of the important new plants which went into production in 1950 was this fine installation by the Sherman Concrete Pipe Company at Atlanta, Ga. This photograph was taken shortly before construction work had been completed.

IN 1950 for the fourth consecutive year the production of all sizes and types of concrete pipe in the United States reached a new all-time peak. A survey conducted late in the year by the American Concrete Pipe Association, in which information was received from all but one producing company, showed a total output of 9,025,000 tons, a gain of almost 13 percent over the estimated 8,000,000 tons produced in 1949. The increase of 1,025,000 tons represents the largest production gain in any single year in the history of the industry. The figure on 1950 production is believed to represent for the first time a complete and accurate coverage of output for the entire industry.

The association's survey shows that the industry's output in 1950 consisted of 3,500,000 tons of sewer and culvert pipe, 4,000,000 tons of irrigation pipe, 1,000,000 tons of drain tile, and 525,000 tons (or 74,100,000 inch-feet) of pressure pipe. Although there are no comparative figures available on the output of the various types of pipe in 1949, it seems virtually certain that the entire group participated in the sizable total production gain that occurred in 1950.

Although the year just closed was a busy and a prosperous one for the concrete pipe industry, it had its problems, too. The shortage of portland cement was at least a source of irritation throughout most of the year, and many producers were compelled to cut their operating schedules somewhat during the worst period of the shortage. There seems to be little evidence, however, that any major amount of tonnage was actually lost due to this factor. This is borne out by the obvious fact that the 1,025,000 tons by which the concrete pipe industry increased its output in 1950 was itself a factor in bringing about the shortage.

Shortages of steel for reinforcing were also noted in 1950, but this was not as serious a problem as the cement situation. It promised, however, to be a critical factor in the 1951 picture, especially on work which does not carry a so-called defense order rating.

Indeed, the entire outlook for the industry in 1951 appears to hinge primarily on the extent of the nation's defense effort. Some drop in production seems almost inevitable, but most producers feel that the reduction will not be severe. This confidence is undoubtedly based on the realization that total industrial mobilization would automatically place a high priority on many projects involving large tonnages of concrete pipe.

• Truck-to-trench delivery, seldom possible with 72-in. reinforced concrete pipe, was effected by Universal Concrete Pipe Company on a recent $200,000 storm sewer project at Columbus, O. The contractor contacted personnel at the Universal plant when more pipe was needed. Sections arrived at the job site on schedule, eliminating the usual street stacking and double handling.

Physically the industry is in far better shape than it was at the outset of World War II. Its productive efficiency is at the highest level in history, largely as a result of almost industry-wide modernization programs carried out in the last four or five years. Profiting from their bitter experience with manpower shortages during the last war, most producers have taken steps to eliminate backbreaking manual labor from their plants and to improve general working conditions.

On the technical front one of the most important occurrences of 1950 was the publication of a final report on the series of hydraulic tests on concrete culvert pipes conducted at the St. Anthony Falls Hydraulic Laboratory of the University of Minnesota. Sponsored by the American Concrete Pipe Association, the test series included three concrete culvert pipes, 18 in., 24 in. and 36 in. in diameter. The primary objective was to obtain pipe friction and entrance losses which would be more accurate and dependable than those now recommended in culvert design literature.

The average value of the Man-

(*Continued on page* 146)

Kentucky Concrete Pipe Company Builds New Plant At Louisville

By WILLIAM M. AVERY

ON THE SPOT REPORT

ONE of the outstanding recent installations in the concrete pipe industry is the Louisville, Ky., plant of the Kentucky Concrete Pipe Company. Placed in operation in September, 1949, the new plant covers more than 20,000 sq. ft. of floor area, and the facilities are modern in every respect. Of particular interest is a unique hydraulically-powered offbearing cart, developed and built by the company, which enables one man to offbear every size of pipe produced in the plant.

Sand and gravel are brought to the plant in trucks which discharge the material through a grizzly into an underground hopper. From there they are conveyed by an apron feeder to an elevator inside the plant proper, and are subsequently discharged through a turnhead into the four-compartment 160-ton aggregate storage bin. A conventional under-track screw conveyor and bucket elevator arrangement feeds bulk cement, received in trucks or railway cars, to a 450-bbl. silo.

The materials are drawn from the bins into an electrically-driven traveling weigh larry equipped with a 5,000-lb. capacity Howe scale. Suspended from overhead rails which run the full length of the machine room, this traveling batcher will ultimately serve several mixers.

The 30-cu. ft. batch mixer which serves the one pipe machine now in service is installed in a floor pit, so that it can be fed by gravity from the batcher. The mix is elevated to the machine hopper by a vertical skiphoist at the rear of the machine, which employs the tamping method to compact the concrete between the inner core and an outer jacket, both of which revolve. It, in common with practically all items of equipment in the plant, was built in the company's own shop. The machine makes 3- and 4-ft. lengths of pipe in diameters ranging from 12 to 60 in. A similar but smaller, high-speed machine will shortly be installed to make plain and reinforced pipe in diameters ranging from 6 to 15 in. On the present unit a 5-man crew can produce 1,000 ft. of 48-in. pipe, or 800 ft. of 60-in. pipe, in a 40-hr. week.

Offbearing of small units is done with conventional carts, but large, heavy pipe are handled with a hydraulically-operated cart designed and built by the company.

This unit has been an important factor in overall productive efficiency, since it enables one man to off-bear any size of pipe produced. The saving in labor is considerable. For example, with a conventional offbearing cart four men are required to move 60-in. diameter pipe from the machine to the curing kiln. Pipe of this size have a net weight of 5,280 lbs., plus 1,400 lbs. for the weight of the form, and even with four men the job of moving them falls definitely into the category of heavy labor.

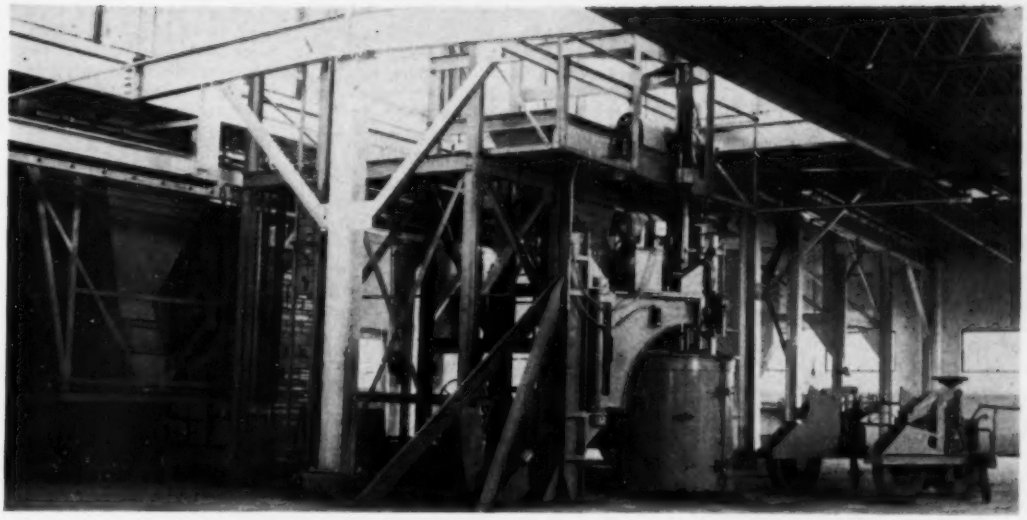
The company's powered offbearing cart was developed by combining a 6,000-lb. capacity Yale Worksaver hand-guided electric platform truck with a conventional manually-operated cart. The platform of the walkie was removed and attachment lugs were welded to the frame to permit the rubber-tired cart to be bolted rigidly to the power unit. Since small-diameter pipe can be handled by one man using a conventional manual cart, the power-operated rig was developed to handle pipe ranging from 21 in. to 60 in. in diameter. Within this range the width of the cart can be adjusted by loosening four cap screws and moving the attachment lugs to the required spacing.

Identical mechanisms for lifting and lowering are installed on each side of the cart, each assembly consisting of a hydraulic cylinder, an oil gear pump, and a 1-hp. motor.

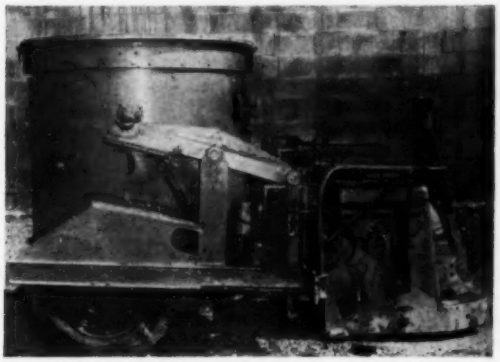
The motors for the hydraulic sys-

• Officials and stockholders of the Kentucky Concrete Pipe Company, Louisville, Ky., who attended the ceremonies which marked the opening of the plant — Mr. Blanton; W. M. Lafferty, general superintendent; Leslie Perkins; H. D. Palmore, president and general manager; and Leslie W. Morris.

• A general view of the Kentucky Concrete Pipe Company's outstanding new plant at Louisville. The four curing rooms in the foreground open on the machine room at the end of the plant.

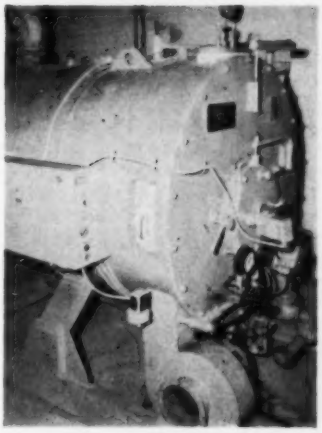


• The machine room, with the electrically-driven traveling weigh larry at the far left. The pipe machine makes 3- and 4-ft. lengths in diameters ranging from 12 to 60 in.

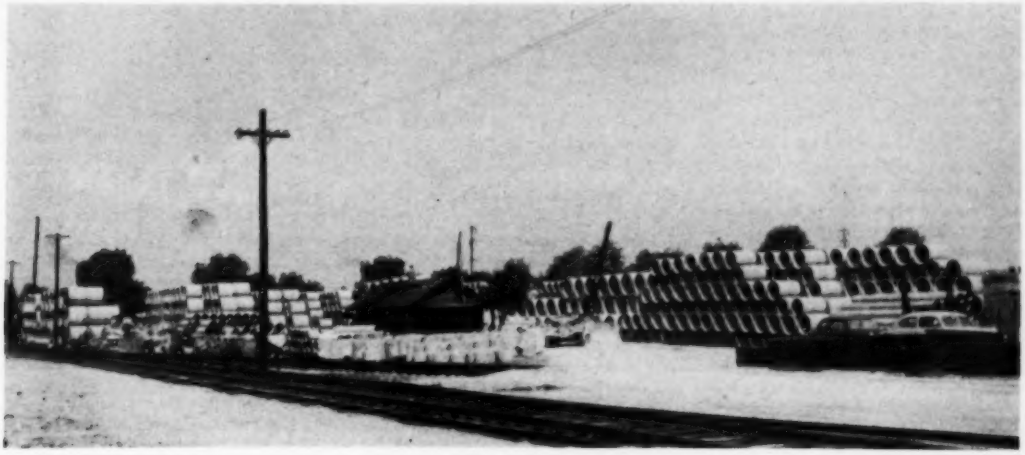


• Left: This unique hydraulically-operated offbearing cart, developed in the company's own machine shop, enables one man to pick up and transport any size of pipe produced. The unit is propelled by an adapted electric lift truck, which also provides power for the lifting mechanism.

• Up to 5,000 tons of pipe in diameters ranging from 6 to 60 in. is carried in stock. The storage yard covers over 100,000 sq. ft. of ground.



• Hot water and steam for curing are supplied by this automatic steam generator.



tem are powered by the storage battery of the walkie. A plug-in system permits quick connection of the two units. Travel controls are located in the conventional position on the handle of the walkie.

On each side of the cart there is a lining-up arm to position the unit for engagement of the lifting arms. Levers mounted on each side of the power unit are then actuated to lift the form, the rate of lift being about 8 in. in 3 seconds. In the curing room the load is lowered by pressing the dual release control on the cart.

According to W. M. Lafferty, general superintendent of Kentucky Concrete Pipe Co., the powered cart, which was placed in service in the spring of 1949, has increased production by 20 percent. The resultant savings are enough to pay for the equipment in a year. In order that the machine will always be available for day-time operations, the company's practice is to plug the battery of the walkie into an automatic single-circuit charger at the close of each day. The firm has tentative plans for manufacturing several units for use in other plants.

Each of the four curing rooms in the Louisville plant measures 22 ft. 6 in. wide by 110 ft. long by 8 ft. high. The side walls are built of concrete masonry units, and the conventional built-up roof is supported on Flexicore slabs. The kilns open into the machine room on one end, and at the opposite end onto a roadway which gives access to the storage yard. To facilitate drainage and to simplify loading there is a full 12-in. drop from the machine room to the roadway.

Hot water and steam for curing are supplied by an 80-hp. fully automatic Amesteam generator. It is fired with oil or natural gas, and operates at 125 lbs. steam pressure, reduced to 40 lbs. live pressure.

The curing cycle, which company officials say achieves in 24 hrs. results equivalent to 28 days of ordinary curing, represents in several respects a departure from usual practice. After a room is loaded and closed off, there is an initial setting period of 3½ hrs. Then hot water, at a temperature of 110 deg. F., is sprayed into the room through irrigation-type nozzles, these being located at 3-ft. intervals along both side walls to assure complete coverage. The sprays are kept in continuous operation for about eight hours before steam is introduced. Steam is admitted at 40 lbs. pressure until a temperature of 130 deg. F., indicated on Brown recording pyrometers, is attained within the kilns. The temperature is held at this level for four hours, and then the flow of steam is cut off during a soaking period which takes up the remainder of the 24-hr. period.

Of the 150,000-sq. ft. property which the plant occupies, an area 200 ft. wide by 550 ft. long is used for yard storage. Both tongue-and-groove and bell-and-spigot type, in diameters ranging from 6 to 60 in., are carried in stock at all times. At the peak this amounts to an inventory of about 5,000 tons.

Pipes are stacked to a height of 14 ft. in the yard by means of 7½-ton capacity rubber-tired crane equipped with a 26-ft. boom. Small pipe are engaged with an open-end hook, and dual hooks are used for large pipe.

At present cast pipe and specials are produced in the original plant building which the Kentucky firm acquired in 1930 by purchase from the Universal Concrete Pipe Company. Work is now in progress on a new 40- by 110-ft. building to be used for casting operations. This structure will be served by a 10-ton bridge crane running its entire length. When it is completed, the old plant building will be torn down, and the site cleared for use as additional yard storage space. Other facilities on the property include a well-equipped machine and welding shop in which the company makes the greater share of the equipment used in its operations.

Kentucky Concrete Pipe is the oldest and largest producer in the state. In addition to the new installation at Louisville, the company operates sizable plants at Owensboro and Lexington. A modernizing program is already in progress at the Lexington plant; and as soon as this work is completed, a similar job will be done at the Owensboro location.

H. D. Palmore is president and general manager of the company.

Ready-Mixed Concrete Review

(*From page* 139)

lieved to be the largest single-location dry-batching plant in the country. Late in 1950 Material Service Corporation of Chicago placed in operation the first of three large central mixing plants planned for the most strategically located of its 14 material yards in the Chicago area. This modern installation has a 6-cu. yd. tilting mixer, and it was designed to produce up to 125 cu. yds. of concrete per hour. The second plant, almost identical with the first, went into operation a few weeks ago, and the third plant will be completed early this year.

Concrete Pipe Review

(*From page* 143)

ning Coefficient (n) determined by the tests is about 0.010, a considerable reduction from the values of 0.013 and 0.015 which have been heretofore recommended. The report points out that the low values obtained for concrete pipe canot be attributed to experimental inaccuracies, for tests on corrugated pipes conducted by the same personnel and under the same conditions yielded considerably *higher* values than those currently in use.

Another important piece of work which the association carried out in 1950 was the writing of an entirely new handbook covering the use of concrete pipe. This much-needed publication deals in great detail with the hydraulics of flow through concrete pipe, and with the mechanics of loads on pipe.

To assist in its stepped-up program of research, in July of last year the American Concrete Pipe Association employed John. G. Henrickson Jr. as research engineer. Formerly assistant professor of civil engineering at Princeton University, Mr. Henrickson has already undertaken for the association an original research study of the design of concrete pipe. The procedure being followed in this long-range program is to develop theoretical formulae, make pipe in accordance with them, and then determine their accuracy by carring out actual breaking tests on the pipe. The work has already established that the assumptions used in the design of reinforced concrete beams are not at all applicable to concrete pipe.

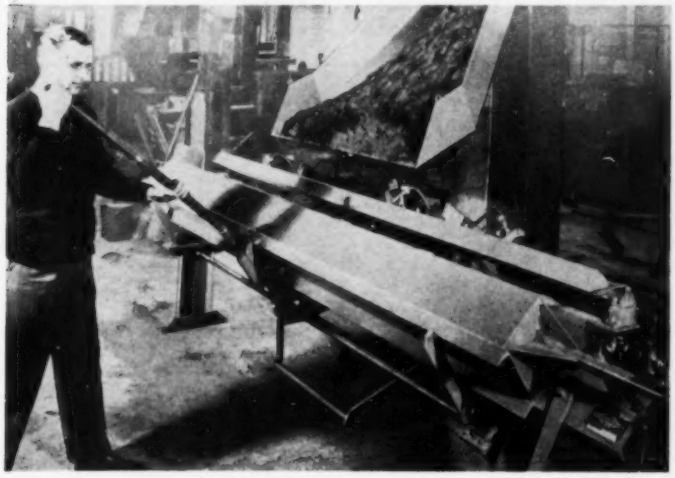
During 1950 the association completed a major reorganization designed to improve its effectiveness in serving the needs of members. Under the new setup there are actually three separate and distinct associations serving the industry. The American Concrete Pipe Association devotes its efforts exclusively to the sewer and culvert pipe fields. Matters pertaining to pressure water pipe are handled by the American Concrete Pressure Pipe Association, and producers of irrigation pipe and drain tile are served by the American Concrete Agricultural Pipe Association. All three groups utilize the same headquarters offices in Chicago and are served by the same executive staff.

New Equipment Developed in 1950

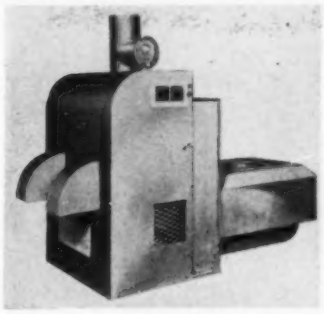
KENT MACHINE COMPANY, Cuyahoga Falls, O., is the manufacturer of the "Lintelator", a device for producing concrete lintels. Only one man is required, as both the machine and the hoist are air-operated.

Combination of pressure and vibration is said to make practical use of any aggregate and produce dense lintels "with textures that match the blocks". Since masons place the lintels in position, no steel erector is required.

A complete cycle is accomplished in three to four minutes. The same steel pallet is used for all sizes, widths and lengths of lintels. The Lintelator is available in the Super and Standard models. On the longer machines two or more lintels can be made by using wood or steel division plates.



Kent Lintel Machine



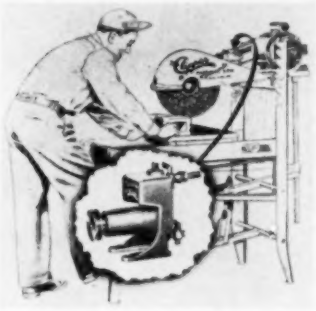
Lith-I-Bar Hydrator

LITH-I-BAR COMPANY, Holland, Mich., is producing the Lith-I-Block hydrator, a self-contained, weatherproof unit that can be installed outside the kiln in a variety of ways.

The machine provides forced circulation of saturated, heated air for "direct and natural hydration" of concrete masonry products. Combustion air is drawn from outside, while curing room air is recirculated. Automatic controls regulate and stop the machine.

AUTOLENE LUBRICANT CO., 1331 W. Evans Ave., Denver, Colo., has developed a new and improved air-entraining product, "Protex", for ready-mix companies and block plants, that is equally valuable to concrete contractors and pipe plants.

The basic agent in Protex has been used by U. S. Government agencies and A.G.C. contractors. It is a liquid which, when added to the concrete mix, entrains millions of near-microscopic, non-combining air bubbles which are equal in volume and size to 200-mesh and are evenly dispersed throughout the mortar phase of concrete.



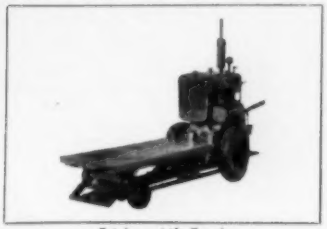
Clipper Masonry Saw

CLIPPER MANUFACTURING COMPANY, 2800 Warwick Trafficway, Kansas City 8, Mo., has added a "factory-sealed" water pump to its Model HD masonry saw.

The pump and the water system has been designed to bathe the saw and the cut to insure smooth cutting and cooling. The new pump permits operation of the saw for either wet or dry cutting by merely turning a petcock; it is not necessary to disconnect the pump.

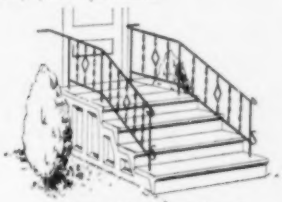
Smith "Load Limit" Mixer

T. L. SMITH CO., Milwaukee, Wis., has developed a new series of LOAD LIMIT truck mixers which are said to haul full rated truck mixer pay-loads and still meet the highway load limitations imposed by most states. Reduced weight is accomplished through the elimination of parts and assemblies which are not basic or necessary to mixer operation. Yet quality and performance are said to be unimpaired. Conversion is easy, in the field. The new machines are available in 2-, 3-, 4½-, and 5½-cu. yd. sizes with higher ratings for agitators.



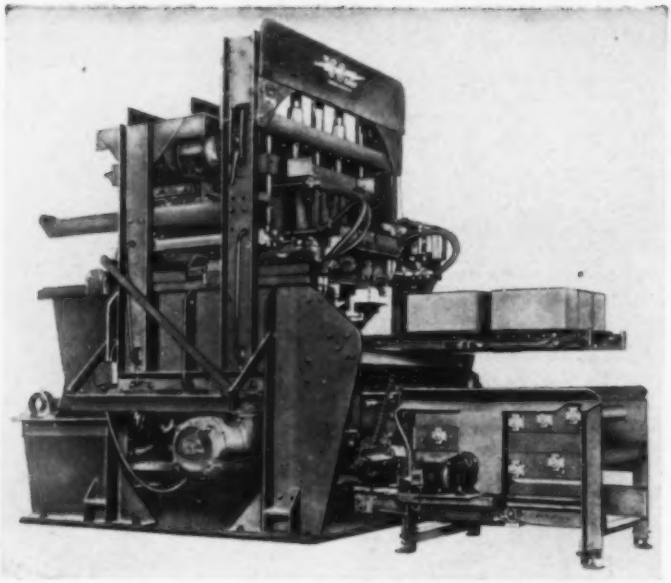
Erickson Lift Truck

ERICKSON POWER LIFT TRUCKS, INC., 1403 Marshall St., N. E., Minneapolis 13, Minn., has announced four speeds forward and four reverse on all Erickson power lift trucks. The installation may be easily made on existing units by the owner or operator. The reverse speeds add to the value of the truck as there are many places where turns cannot be made and speed is desirable, as in kiln loadings and unloading, and in many yard operations.



Williams "Homeward Steps"

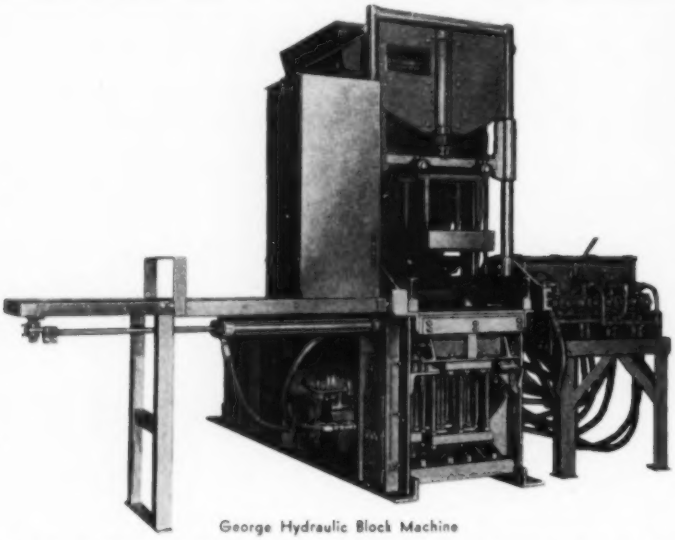
ROGER F. WILLIAMS COMPANY, 3420 S.W. 9th Street, Des Moines, Ia., has developed molds for sets of prefabricated, steel-reinforced concrete steps in 4-, 5-, or 6-ft. widths. The steps can be furnished with from one to seven risers, and as steps only or with a 42-in. platform. They are known as "Homeward Steps."



Olsen "Gocorp" Automatic Block Maker

GENE OLSEN CORPORATION, 401 Grace Street, Adrian, Mich., has added a number of new features to the "Go Corp Senior" block machine, including automatic operation, pallet return and quality control; each step adjustable to accommodate any block and aggregate; hopper feed direct to mold box; capacity of 12 8-in. equivalents per minute; hydraulic drive; "resonant" vibration; plain pallets and racks with three 8-in. units per pallet.

Pallets are cleaned, oiled and reversed during each cycle.



George Hydraulic Block Machine

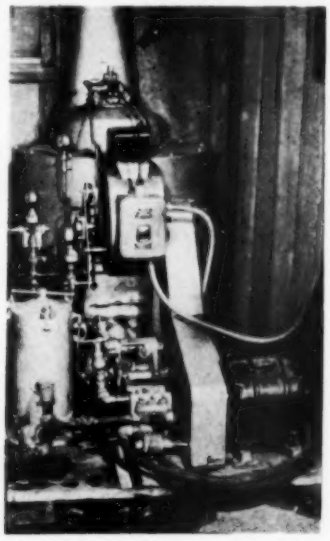
F. C. GEORGE MACHINE COMPANY, Orlando, Fla., is manufacturing the "Series 400" hydraulically operated concrete block machines.

These machines can produce 3,000 masonry units a day in either "Redi-Furred" or conventional blocks. They feature "Press-Pac" action and high frequency operation. There are three models in the series, representing various degree of automatic operation. The 400 A is completely automatic, with air hoist and pallet feed; the 400 H is designed for one-man operation with optional air hoist; and the 400 H3 is a stripped model without automatic features.

Concrete Transport's "Hi-Lo"

CONCRETE TRANSPORT MIXER COMPANY, 1980 Fyler Avenue, St. Louis 9, Mo., has introduced the "Hi-Lo" truck mixer. The new models are lightweight, fast charging, and have controlled discharge.

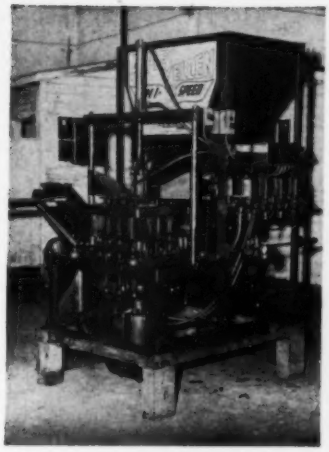
Featuring "visible mixing action", the open-top, stationary drum mixer with its revolving blade produces a kneading, folding, and blading which reportedly provides a homogeneous mix and prevents segregation, assuring uniform consistency. Hi-Lo Jr. and the larger Hi-Lo truck mixers can be installed on any truck chassis.



"Kwik-Steam" Generator

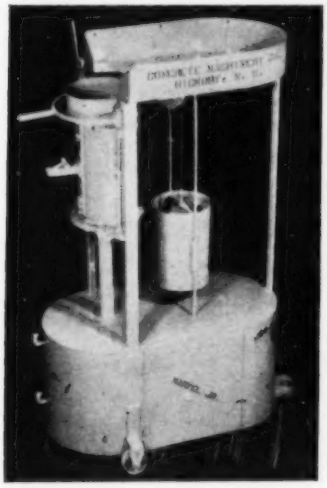
LITTLEFORD BROS., INC., 457 E. Pearl Street, Cincinnati 2, O., has put on the market a device known as the "Kwik-Steam" vapor generator. With this generator, it is possible to produce steam in two minutes. It was designed for steaming aggregate for ready-mix, heating for curing concrete blocks, operating steam hoists, etc.

In principle the Kwik-Steam is a coil-type device, not a boiler. After the generator is started, automatic controls take over to keep a predetermined steam pressure at all times.



Mishco Automatic Block Machine

MISHCO CORPORATION, 615 S. E. Second Avenue, Miami, Fla., has placed on the market the Appley-Yellen High Speed Automatic block machine. This unit makes two blocks per cycle and has a capacity on automatic operation of 4000 blocks per day. The entire cycle is electrically controlled and uses 80 to 100 lbs. air pressure on actuating units. The machine uses interchangeable cores to produce both standard and special stocks. It is also available in semi-automatic and hand operated models.



Concrete Machinery Tile Maker

CONCRETE MACHINERY COMPANY, Hickory, N. C., has brought out the "Marvel Junior" drain tile machine for producing 4- and 6-in. tile.

Several operators can work at the machine at a time, each with a mold band. The tile is offborne directly on the floor, and the machine is pushed forward as necessary. Power is supplied by a ½-hp. motor. The mechanism is completely enclosed.

Only JAEGER truck mixers are ENGINEERED for bigger payload

Engineered (not stripped) for weight saving — 600 to 1600 lbs. lighter for bigger payload, yet completely equipped and sturdier built. Cost less to maintain than former models; have same heavy gauge of drums and blades.

Engineered for time saving — 10 seconds per yard to end-load dry materials, 20-25 seconds per yard to discharge 4″ slump concrete, only 60 seconds to discharge 1″ slump.

Engineered for cost saving. All the advantages that make Jaeger the leading and largest-selling truck mixer, now available at hundreds of dollars lower price.

End-Loader or "Sealed Drum" Top Loader Types — in 2 to 5½ yd. sizes. Fluid drive, if you want it. Also "Low Charge" models up to 10 cu. yd. sizes.

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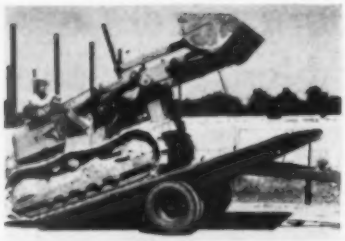
AIR COMPRESSORS • PUMPS • MIXERS • HOISTS • TOWERS
AGGREGATE SPREADERS • BITUMINOUS PAVERS • CONCRETE SPREADERS, FINISHERS



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HAUL *faster* . .
LOAD *easier* . .

Model "B" 10 ton
Only $1152

The following equipment is optional and extra. Hydraulic tilt control, two speed winch, electric brakes.

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with the RUGGED MILLER Model "B" Tilt-Top

MILLER Tilt-Top trailers save man hours—give new mobility to every piece of equipment. Self powered equipment is simply driven on or off tilted platform—dead equipment is easily pulled on with optional hand operated winch.

All steel, X braced frame has tapered side channels and integral straight-through axle. Standard platform is 14' x 8', optional 16' available. Platform, tires, Timken bearings, pintle eye and dual Budd wheels are all standard equipment.

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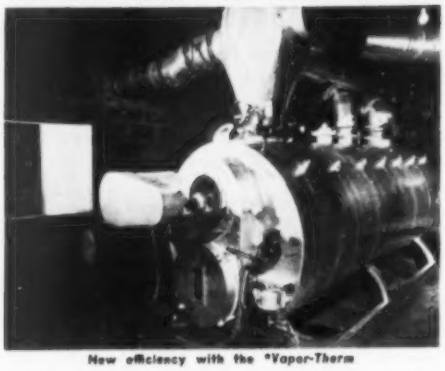
THE NEW CURING METHOD WITH EMMONS *VAPOR-THERM



New efficiency with the *Vapor-Therm

- Steam delivered to kiln within three minutes from start.
- No initial set is necessary as the block surface is covered, immediately, with moisture.
- Vapor is generated at low pressure, high temperature.
- Fully automatic electric programming controls provide for individual time cycles on a selected group of five kilns.
- Automatic off and on operation assures admission of enough steam to envelope all the blocks in the kiln without raising the temperature of any of them too fast.
- Same *Vapor-Therm "package" unit can deliver very high temperature saturated steam for drying.
- Better curing conditions surround the block, producing harder block, with improved color and less breakage from handling.

R. D. EMMONS
*VAPOR-THERM SYSTEM
is

Better!
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WRITE
WIRE
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*Patents Pending

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Kwik-Mix Power Wheelbarrow

KWIK-MIX COMPANY, Port Washington, Wis., announces an improved power wheelbarrow, the "Moto-Bug". Replacement of the steering levers by a large steering wheel is a major change.

The Moto-Bug has a rated hopper capacity of 10 cu. ft., or 1200 lbs. on the platform body. It is powered by a standard 4-hp. gasoline engine and travels 1½ to 4 m.p.h. forward and reverse.

Johnson "Lo-Bin" Batcher

C. S. JOHNSON COMPANY, Champaign, Ill., has introduced the "Lo-Bin", a pneumatic-tired mobile trolley batcher.

The batcher has a maximum bin capacity of 30 tons and a charging height of 9½ ft. It can be furnished to handle two, three, or four aggregates. The traveling aggregate hopper (22 or 44 cu. ft. capacity) is cantilevered to dump directly into a mixer skip.

Cleveland Portable Vibrator

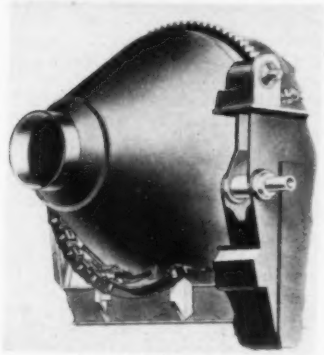
CLEVELAND VIBRATOR COMPANY, Cleveland 13, O., has developed a small vibrator, the "Vise Grip" that can be attached to concrete forms, hoppers, bins, dump trucks, and other containers to shake out powdered, granular, or semi-liquid materials.

The device has a steel U-shaped head that functions as a vise to clamp the unit to any suitable structural member.

SUPREMIX INC., an affiliate of Gene Olsen Corporation, Adrian, Mich., claims for its "Tilting Mixer" many features which make it an outstanding piece of equipment for new plants, and for those converting to central mixing.

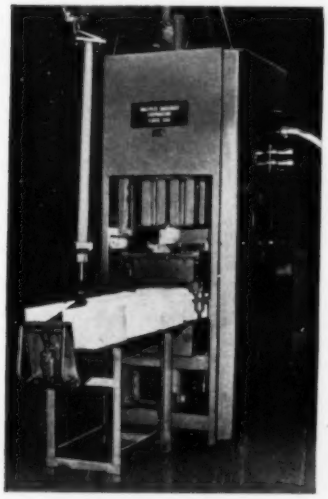
The Supremix Mixer is an integral part of the plant structure, eliminating elevated foundations or separate mixer platforms.

Due to its design the Supremix plant allows for two lines of traffic, one for



Supremix "Tilting Mixer"

central mixing and one for dry batching, using the same scale and batching facilities. Ease of conversion can be accomplished without raising present bin structures or depressing driveways.



Multiplex Block Machine

MULTIPLEX MACHINERY CORPORATION, Elmore, O., has developed the "Multico" automatic block machine in two models, No. 2 producing two blocks per cycle, and No. 3 producing three blocks.

The machine is fully automatic and is hydraulically powered. Special features cited by the manufacturers are separate "Power-Pack" control cabinet, accurate die-cast forming controls, simplified mold box for rapid change, simple operation, and pressure vibration plus tamping.

HANDLES any AGGREGATE

"THE NEW Brickmaster

Only machine in its price range with capacities to 5,000 concrete bricks per hour."

Here's a true mass production unit that combines economy price with flexible performance. The Brickmaster . . . provides automatic production of concrete brick . . . special insulation brick and slab . . . briquettes of various materials (including fuels and mineral ores) . . .

Produces Brick . . . Slab . . . or Briquettes

Not only does the Brickmaster cover a broad scope of products . . . it is also easily adjustable to a **wide range of sizes.** In addition, this "modern" performer handles any aggregates which mix with cement.

Only 8 H.P. Required to operate

And we'll repeat that — BRICKMASTER IS THE ONLY MACHINE IN ITS PRICE RANGE WHICH WILL PRODUCE UP TO 40,000 BRICK PER 8-HOUR DAY. . . . Write today for new, free bulletin. No obligation.

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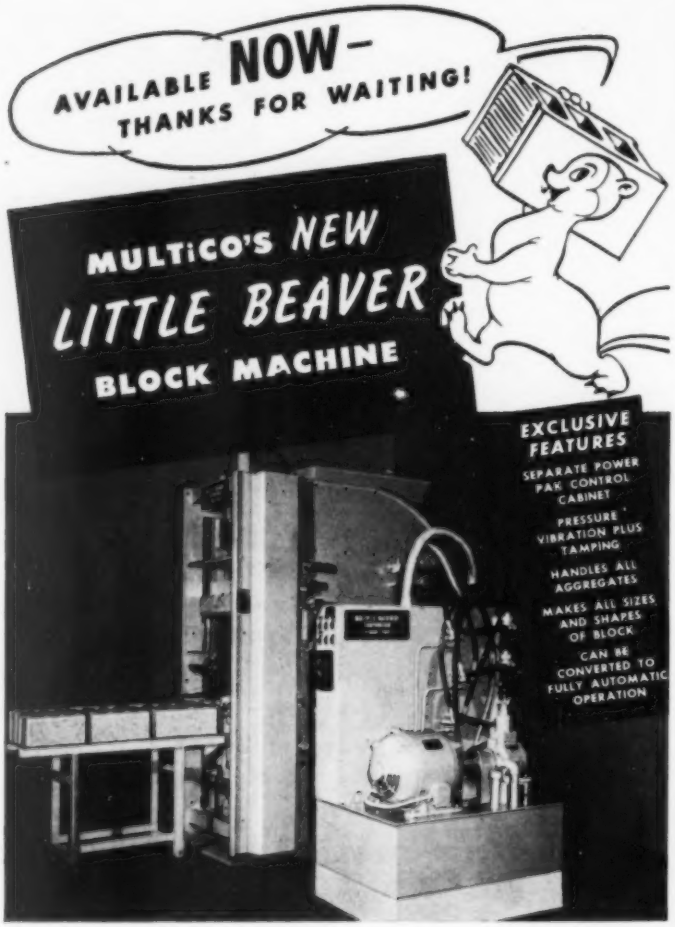


SEMI-AUTOMATIC • HYDRAULICALLY POWERED
LOW INITIAL COST FOR SMALL PLANT OPERATORS

Another Multico first — this new sensational LITTLE BEAVER block machine can get you started in the concrete block business with minimum initial costs. Designed particularly for the small plant operator, the LITTLE BEAVER offers Blockmaster high production, quality block output, at the same lower labor costs.

It is semi-automatic — can be inexpensively converted to be fully automatic at a later date. Manual controls located conveniently on the separate power pak, first release the aggregate — vibrate on pressure — then tamp the block to size, all in one simple cycle of operation.

The LITTLE BEAVER'S advanced design represents the know-how and experience acquired through Multico's 45 years in this industry. The machine uses plain steel pallets, enabling you to produce any size or type of block desired.

Have a Multico Field Engineer assist you in planning your plant now — let him tell you first hand how you, too, can have a profitable operation right from the start with the LITTLE BEAVER.

MULTIPLEX MACHINERY CORP. ELMORE OHIO

MANUFACTURERS OF BLOCK MACHINES • MIXERS • SKIP HOISTS • STRIPPERS • ELEVATORS

Jaeger Truck Mixer

JAEGER MACHINE COMPANY, Columbus 16, O., has announced the "Payloader" models of truck mixers.

These machines are lighter in weight; they have a newly-designed hopper that makes possible faster end-loading, and high-speed revolving of the drum while loading or unloading. Pre-mixed materials can be charged in one drop through a top door in the drum. A new self-lubricated hopper seal gives a long-life leakproof installation.

Yoder Concrete Tester

YODER COMPANY, 5500 Walworth Ave., Cleveland, O., is producing a new 100-ton concrete testing machine designed especially for use by ready-mixed and concrete products manufacturers in their own plants. By limiting the capacity to 100 tons, it was found possible to place it within easy reach of most plants, large and small. The machine meets all the essential requirements laid down by A.S.T.M. specifications. It will test 6-in. cylinders, brick, and block up to 8- by 8- by 16-in.

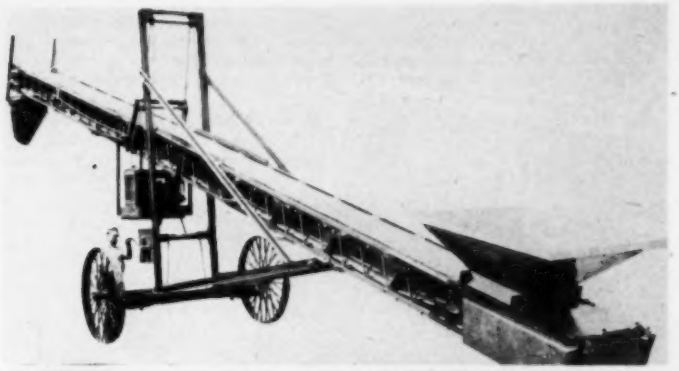
UNIVERSAL DOOR CARRIER, Inc., 1117 Cornell Avenue, Indianapolis 2, Ind., is manufacturing "Uni-Temp" insulated all-metal kiln doors for hinge or carrier mounting. They can be furnished in all-aluminum or steel-framed type. The doors are designed to give a positive vapor seal, and to conserve heat. They can withstand weathering without painting. It is claimed that these doors make one-man removal or replacement of kiln doors possible.

NEW MACHINERY and SUPPLIES

● Concrete Trough Conveyor

A "Super-Trough" Conveyor for handling wet concrete is being made by the Conveyor Engineering and Supplies Corp., Clifton, N. J. The belt is manufactured specifically for wet concrete use, and all other portions of the machine have been designed for that purpose. Rubber strips on the feed hopper prevent concrete from seeping to the sides of the belt, while the hopper itself is readily disassembled for cleaning. (See illustration at right.)

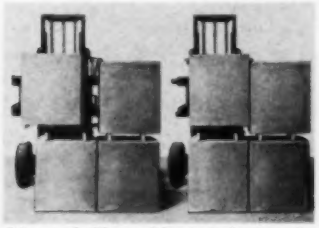
Clean-out provision is also made at the conveyor foot to facilitate washing out of residue. Discharge is through a swivel spout that can be converted to a ½-cu. yd. hopper if needed. Standard sizes are available in 24-in. width.



● Sideshifter Mechanism

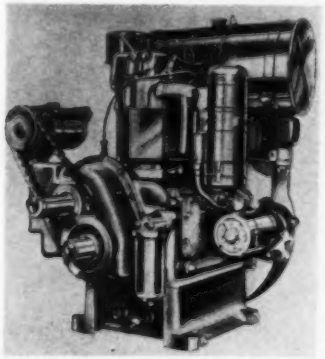
A sideshifter mechanism is available for the forks of power lift trucks manufactured by the Erickson Power Lift Trucks, Inc., 1401 Marshall N. E., Minneapolis 13, Minn.

The device enables the operator to shift the fork load 3½ in. either to right or to left of the center. This makes possible stockpiling without jockeying the truck into perfect alignment. The shifter is hydraulically operated



● Air-Cooled Diesels

Two models of air-cooled diesel engines are being sold and serviced by Lister-Blackstone, Inc., 420 Lexington Avenue, New York 17, N. Y. These engines are made in England by Arm-



1 of 10 Reasons Why UNIT is a Better Machine

UNIT was the first manufacturer to "break" from the old style, conventional type cab in favor of the more modern Full Vision Cab. There is no other cab like it—streamlined to the minute in design, without sacrificing headroom, weight, or capacity. It offers unexcelled visibility, with all the room needed to operate in real comfort and safety. Large, shatterproof safety-glass windows, on all four sides, provide more light and give full protection against inclement weather. Windows on both sides can be raised or lowered by crank action—the double front window folds and slides up out-of-the-way. Convenient sliding side panels, and easily lifted top hood covers give ready accessibility to main machinery, engine parts and assemblies. Broad platform walks, on both sides, make it especially easy to service at any point. The UNIT Full Vision Cab has superior design that outdates all others—constructed to assure efficient and safe operation.

UNIT CRANE & SHOVEL CORPORATION
6401 W. Burnham Street, Milwaukee 14, Wisconsin, U. S. A.

357 MOBILE CRANE
Self-propelled . . . Powered by ONE engine . . . controlled and operated by ONE man . . . the smoothest operating and easiest handling crane made . . . Compact, it has light-truck mobility . . . operates with speed and economy . . . on or off the highway.

This is the 2nd of a series of ten ads describing outstanding UNIT features.

Crawler and Mobile models — ½ and ¾ Yd. Excavators. Cranes up to 20 tons capacity.

UNIT

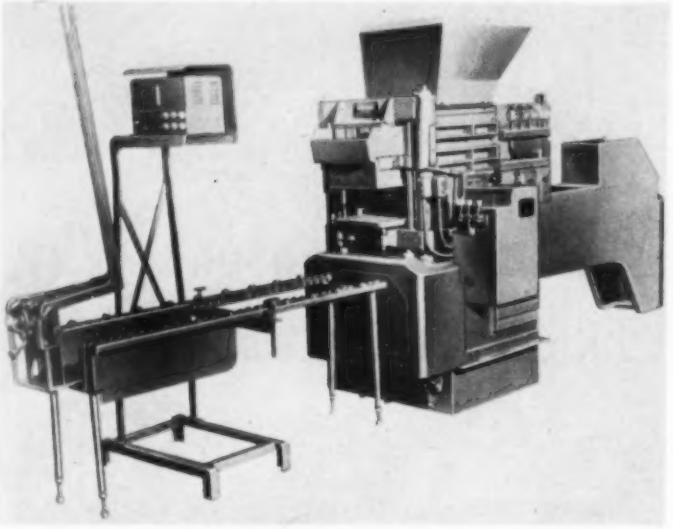
SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS

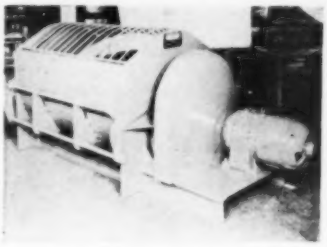
strong-Siddeley Motors.

Two models are available. One is a single-cylinder that develops 8 hp., while the other is a two-cylinder developing 20 hp. These are designed to feature diesel economy of operation with the advantages of air-cooling in certain applications. Concrete mixers, pumps, and generators are suggested applications. Hand or electric starting is optional. The crankshaft is designed to take standard clutches, take-off units, and other transmission devices.

● Electronic Block Machine

An automatic, electronic block machine is now available from the Columbia Machine Works, 107 South Grand Street, Vancouver, Wash. The new machine has been designed to give maximum flexible control of each operation throughout the block-making cycle. An additional feature is a choice of remote control or manual operation, by means of switches.

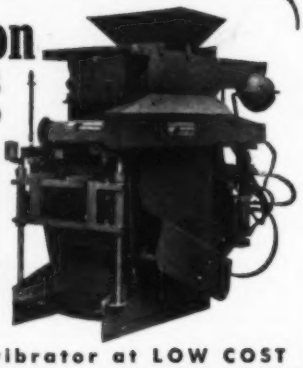




The Columbia line of concrete mixers has been increased by the addition of some intermediate sizes. Five are now available. These have been improved by the use of rubber liners for longer wear.

Sika Chemical Corporation of Passaic, N. J., manufacturers of Plastiment, a retarding densifier, and 14 Sika compounds for concrete and masonry construction, have opened a new Pittsburgh branch office. Centrally located at 335 Fifth Avenue, it is headed by Robert E. Parlette, district sales engineer.

High Production
of SUPER BLOCKS
(SMOOTH FINISH – SHARP EDGES)
the FLEMING WAY
A Block Plant tailor-made to suit your requirement and expenditure. Any capacity from 1000 to 5000 per day.



FLEMING FMC 180
AUTOMATIC CONCRETE BLOCK MACHINE
The quality plain pallet vibrator at LOW COST

FLEMING FMC 24
PLANT MIXER
Delivers a perfect concrete mix to one or more machines.
Priced as a TWO sack Mixer with THREE sack Drum and Gear Reduction Capacity.

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MANUFACTURING CO.
4989 FYLER AVE. • ST. LOUIS 9, MO.

COMPLETE CONCRETE BLOCK PLANT EQUIPMENT

M-K Lime Process wins OK of Concrete Producers

The patented MILLER-KOMLINE Process of producing superior lime putty makes the Ready Mixed Brick Mortar market available for ready-mix concrete operators.

Product requires no aging, and is ready for use right after slaking. Can be mixed with sand and Portland cement and delivered via transit mix trucks.

Inventors will design and erect plants, and install apparatus on *exclusive patent license.*

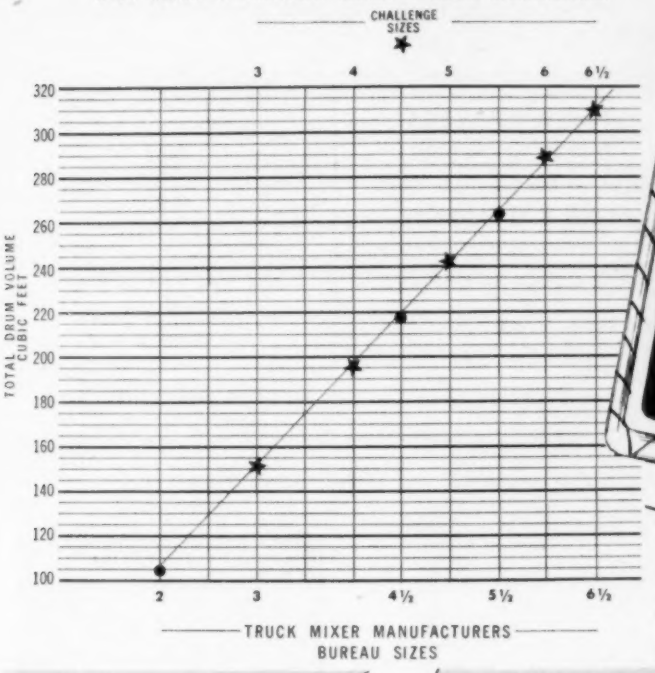
Mat of processed lime putty being carried over outrigger roller of M-K machine by helical springs.

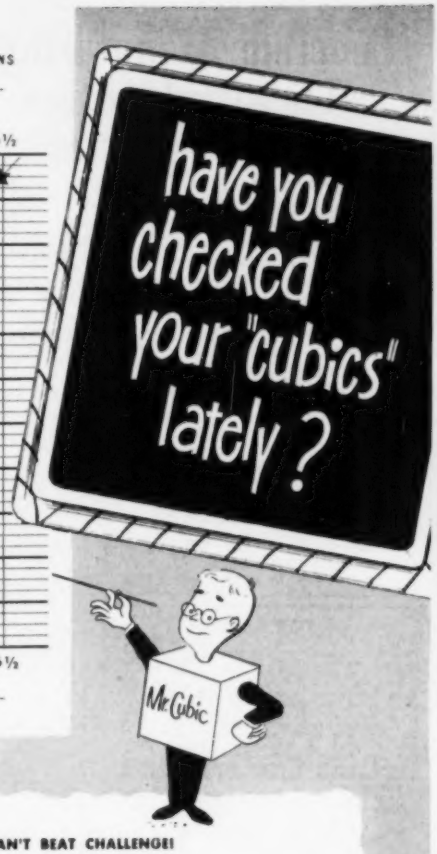
Write for Full Details

MILLER - KOMLINE CORP.
Sole Licensees of M-K Process
PEAPACK, NEW JERSEY
Durando Miller Thomas R. Komline

COMPARISON CHART

DRUM VOLUME OF CHALLENGE MIXERS TO NRMCA SPECIFICATIONS





change to challenge in '51... ...the leader!

DOLLAR FOR DOLLAR, YOU CAN'T BEAT CHALLENGE!

Compare the Challenge sizes with those of the Truck Mixer Manufacturers Bureau on the chart above. Take the Challenge 5 yard size for example. Here's a mixer, which weighs **HUNDREDS OF POUNDS LESS,** with 24 cu. ft. **MORE** drum space that sells for approximately the same price (or less) as competitive 4½ yard mixers which have only 217 cu. ft. of drum space... almost 1 cubic yard **MORE** in the Challenge.

Compare Challenge **QUALITY** and **PERFORMANCE** with that of any other mixer, particularly on pours of low slump concrete... you'll agree Challenge is your **best** truck mixer buy! For complete information, see your nearest Challenge dealer listed below.

Member NRMCA

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Exclusive National Distributors for
CHALLENGE, the modern, streamlined Truck Mixer
1815 North Broadway, CApitol 2-9111, Los Angeles 31, Calif.

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Dallas, Texas

J. W. BELL COMPANY, Inc.
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GIL BOERS EQUIPMENT CO.
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(USES PLAIN WOODEN PALLETS)

Including Attachments to make the following:

(1)—Modular Size cored block
(2)—7-Brick At-A-Time
(3)—Curved block
(4)—Chimney Block

$395.00

BRANFORD vibrator is installed including the over-head pressure-plate and the compound lever press.

Freight Charges Prepaid to any point in the United States.

— EVERY MACHINE IS GUARANTEED —

CHASE CONCRETE - MACHINERY CO.

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— Telephone: University 2226 —

FOR SALE

Free—2 block machines with purchase of 8200 like new pressed steel pallets @ 40c. Stearns Stripper and 2 block dual vibrator (used less than 3 mo.) Mold boxes 4"-8"-12". New modular sizes 7⅝ with about 9000 pallets. Regulars, corners, sash and bull nose. 28 cu. ft. Stearns Mixer, lift truck, racks, etc. at less than 50%.

Commercial heavy duty Dunbric Machine fully automatic, with 20,000 pallets—20,000 day cap.

40 A. gravel pit with crane, doners & trucks. Will lease 40x100 building—Buyer's option.

Owner forced to sell because of age and ill health. Owner will finance. See this plant in operation, too much business.

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An expanded shale aggregate for lightweight block and concrete

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Ideal—21 cu. ft. Mixer. Good condition, with 12 ft. drag elevator. Only $550.00.

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—Burning gasoline, kerosene or diesel fuel.

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Portable, Quick, Clean Heat

Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

$95.00 each

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Stearns Jolterete—model 9, complete with motors and switches, excellent condition—can be seen in operation. Has 8"—12"—18" Header attachments. Very reasonable. 80 Steel Racks—72 block capacity.

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210 N. 5th St. — Niles, Michigan

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Complete Block Plant—Besser K 3, with 4", 6", 8", 12" setups, 2,000 pallets, 80 racks, 2 'Red Giant' Revolvator Lift Trucks, 1¼ Bag Blythstone Mixer, 24' x 19" Concrete Conveyor, 45', 20" Belt and Bucket Aggregate Conveyor, all with motors. Price $5,800 or will sell in part. **Modern Block Co., P. O. Box 392, Centerville, Tennessee.**

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Both McCracken Type and Martin Trowelers—PROVED to last as long or longer — yet cost considerably less. Write for prices.

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LUFKIN, TEXAS

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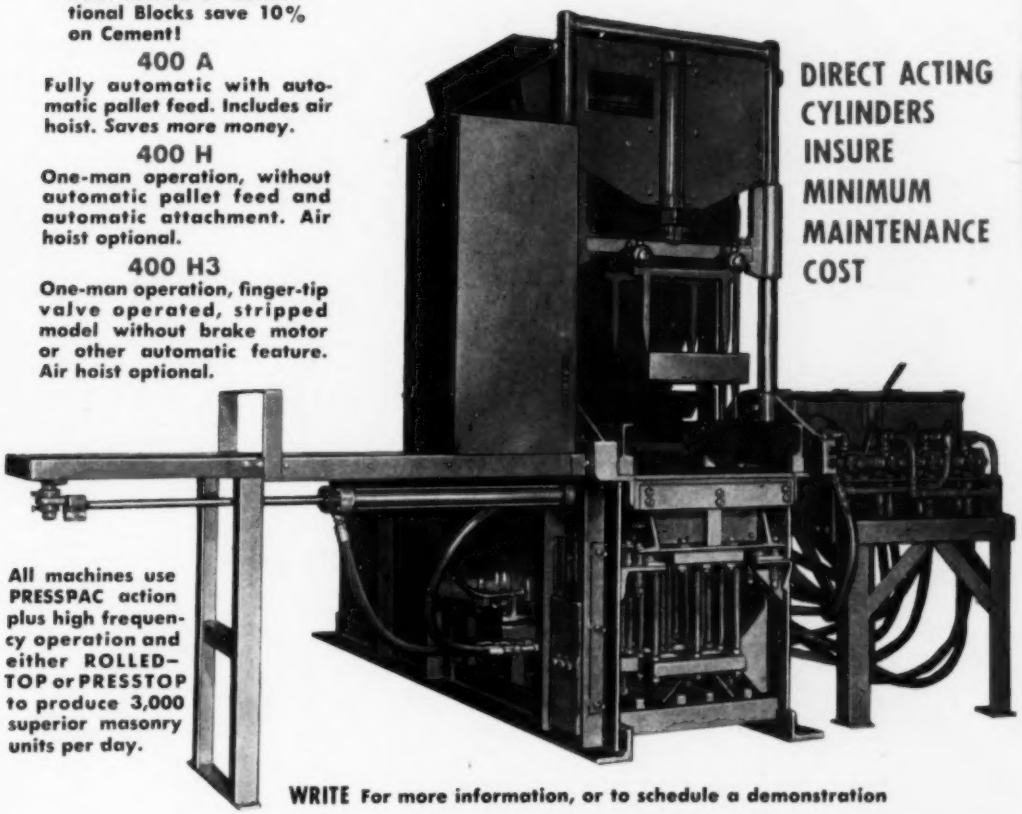

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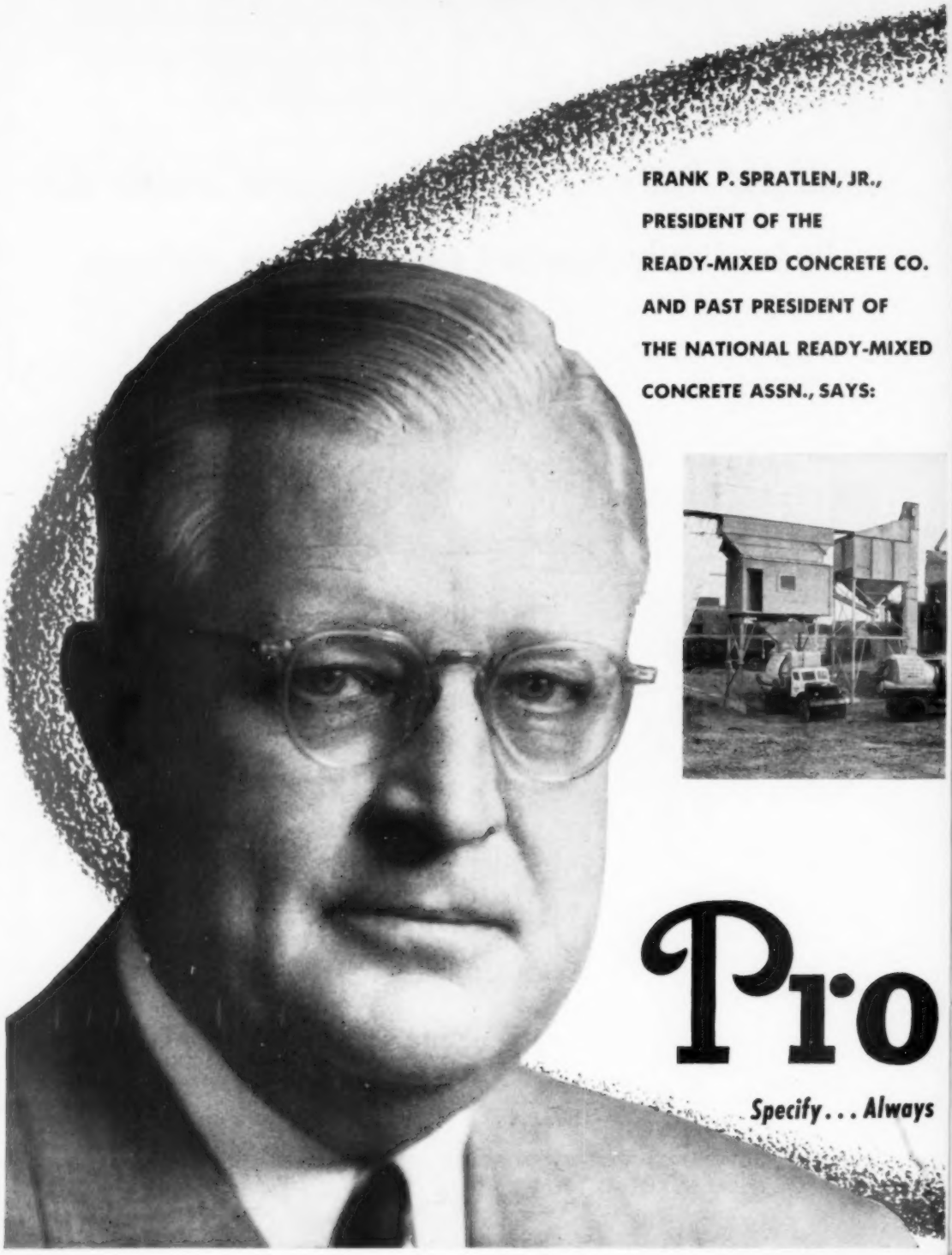

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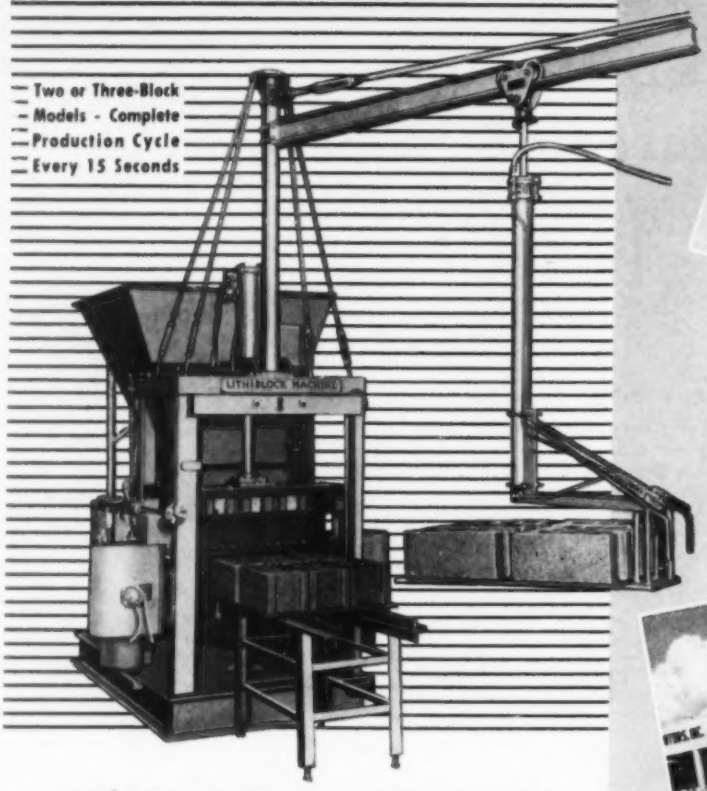

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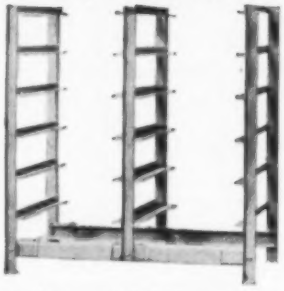

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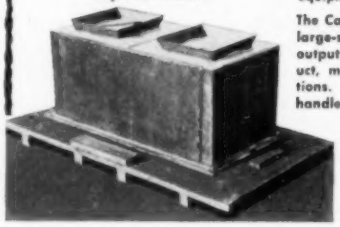
Concrete Drain Tile Machine

Put a MARVEL, JR., concrete drain tile machine in your plant and you'll find it your fastest profit producer per dollar of investment and operating cost, as have operators in every section of this country and abroad.
Investigate today; demand for tile exceeds production. You can be in production within a few minutes after arrival of the MARVEL, JR.
You'll be surprised at its low cost; its low operating expense; at the superior, strong, flat-end tile it produces, and it can pay itself off in two weeks operation. Send for drain tile bulletin today and get detailed information.

CONCRETE MACHINERY CO.
P. O. Box 2248 Hickory, N. C.

***THERE'S BIG MONEY* in Septic Tanks**
when you use
CARPENTER
EQUIPMENT



For extra profits in concrete, install quick-working CARPENTER septic tank forms and handling equipment.

The Carpenter Line assures large-scale, economical output of a quality product, meeting all specifications. Our delivery rig is handled by only one man.

Used Coast to Coast
CARPENTER MFG. CO.
Phone 22018
R.F.D. No. 1, Box 470
RICHMOND 23, VA.

58 Countries

all over the World have

Service and Parts

facilities for

Hyster Lift Trucks

HYSTER® COMPANY

THREE FACTORIES

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1826 NORTH ADAMS STREET.. PEORIA 1, ILLINOIS
1026 MEYERS STREET..... DANVILLE, ILLINOIS

EVERY HYSTER DEALER IS A LIFT TRUCK SERVICE AND PARTS STATION. He has factory-trained mechanics skilled in maintenance and repair. He has an adequate supply of genuine Hyster parts. His service is quick, courteous, efficient.

Hyster Lift Trucks (7 models) range in capacity from 2,000 to 30,000 pounds. Hyster *Salsbury* Turret Trucks (4 models) for horizontal materials handling.

Call your nearest Hyster dealer when you need fast service and parts delivery.

OSWALT SERVICE will help you BEAT THE MANPOWER SHORTAGE

OSWALT Service offers Vibrapac owners 50% greater output — without sacrifice of quality—without any more labor cost except yard expense for handling extra production.

Your profit is increased at least $60.00 per day.

Every 100 days you operate your Besser vibrapac *without* OSWALT Service, you are paying for it anyhow and without getting the benefits.

HIGH BLOCK PLANT EFFICIENCY

LOW OPERATING COSTS

Write or Phone for name of the OSWALT Serviced plant nearest you.

OSWALT ENGINEERING SERVICE CORP.

1335 Circle Ave., Forest Park, Ill. Phone COlumbus 1-7073 — FOrest 6-3898

Complete Satisfaction

Ask the men who use them . . . and they'll tell you that Dixon Concrete Pipe Machines are the fastest pipe makers, the biggest money makers in the business. The records speak for themselves.

(Illustrated) Dixon Model "C" Hydraulic Pipe Machine, for 4" to 18" B & S; 6" to 18" T & G 3 and 4" Joints. Adaptable to 18" grease traps. Write for complete information.

". . . it has given trouble-free performance."

". . . we are more than pleased and can speak only too high for your equipment."

". . . we can produce more tons, per man, on your machine than any competitive one we know."

". . . off-bearers can not keep pipe away from the machine."

". . . Men come from other plants . . . to work on the Dixon machine."

". . . no pipe failures in four years . . ."

Names of these enthusiastic users of Dixon Pipe Machines will be furnished upon request.

HOUSTON CONCRETE MACHINERY CO.

Office and Mailing Address: 116 Heights Blvd. HOUSTON, TEXAS
Plant: 6600 Washington Ave.

Manufacturers of:

Dixon Pipe Machines — Septic Tank Forms
Pipe Bend Machines - Dixon Conveyors
Dixon Mixers — Off-Bearing Carts

"TAKE A LOOK JOE"!...

...I made this cut with my new CLIPPER in just 10 SECONDS!

"...and Joe, look at the smooth, straight edges on that material—they're perfect! The finished job looks better, costs less and can now be completed in record time."

NINE MODELS TO CHOOSE FROM
PRICED from $265.00

Yes... CLIPPER MASONRY SAWS Make *Any* Cut Quickly and Easily!

Regardless of the material hardness—a Clipper Masonry Saw will cut any shape in record time and with smooth simplicity that will amaze you. . . . And with the MODEL HD you can choose your cutting method — cut DUSTLESS in confined areas or Dry for outside operations. Remember too, there are NINE Clipper Models — each designed to economically handle your specific masonry cutting needs.

FREE TRIAL...

The outstanding policy of "FREE TRIAL" has been in effect since Clipper invented the world's first Masonry Saw many years ago! Only through this Clipper "FREE TRIAL" are you guaranteed . . .

- ACTUAL TEST ON THE JOB
- FULL SATISFACTION
- NO OBLIGATION

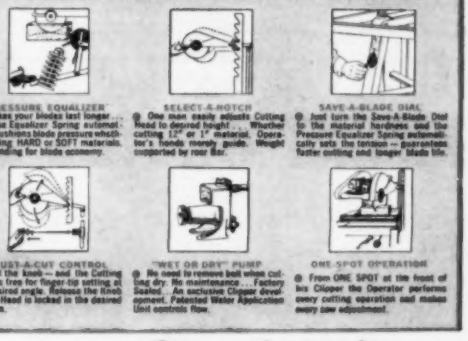
SOLD ONLY DIRECT From FACTORY To USER

Masonry cutting is a highly specialized field demanding direct Factory-To-You service which Clipper trained technicians can give you.

Your assurance of permanent satisfaction with your Clipper Products is doubled by our Policy of . . .

- DIRECT ATTENTION..
- DIRECT SERVICE..
- DIRECT RESULTS..

EXCLUSIVE CLIPPER FEATURES...



PRESSURE EQUALIZER
Makes your blades last longer... Because Equalizer Spring automatically cushions blade pressure whether cutting HARD or SOFT materials. Outstanding for blade economy.

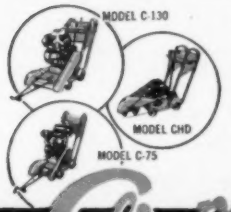
SELECT-A-NOTCH
One man easily adjusts Cutting Head to desired height . . . Whether cutting 12" or 1" material. Operator's hands merely guide. Weight supported by rear Bar.

SAVE-A-BLADE DIAL
Just turn the Save-A-Blade Dial to the material hardness and the Pressure Equalizer Spring automatically sets the tension — guarantees faster cutting and longer blade life.

ADJUST-A-CUT CONTROL
Pull the knob — and the Cutting Head is free for finger tip setting at any desired angle. Release the knob — and Head is locked in the desired position.

"WET OR DRY" PUMP
No need to remove belt when cutting dry. No maintenance . . . Factory Sealed . . . An exclusive Clipper development. Patented Water Application Unit controls flow.

ONE-SPOT OPERATION
From ONE SPOT at the front of his Clipper the Operator performs every cutting operation and makes every saw adjustment.



...and Now Available- CLIPPER CONCRETE SAWS

Six new "Job-Tested" models—gasoline or electrically powered and in sizes for all concrete cutting from Highway work to Patch work . . . and exclusive with Clipper—a unit which converts a masonry saw to a Concrete or Track Saw. Free literature on request—check and mail coupon.

Serving the World As the World's Largest Manufacturer of Masonry Saws

Clipper
NATION-WIDE DIRECT FACTORY SERVICE

MANUFACTURING CO.
KANSAS CITY 8, MISSOURI
Cable Address: CLIPPER K. C. Mo.

PITTSBURGH • ST. LOUIS • NEW YORK • WASHINGTON, D.C.
SAN FRANCISCO • CHICAGO • CLEVELAND • PHILADELPHIA
AUSTIN, TEX. • DETROIT • CINCINNATI • ATLANTA • BOSTON

CUT WET or CUT DRY
There's a Clipper Blade for Every Job!

TEAR OUT AND MAIL!

CLIPPER MANUFACTURING COMPANY
2801 N.W. WARWICK • KANSAS CITY 8, MO.

SEND FREE INFORMATION AND LITERATURE ON:

☐ NEW CLIPPER MASONRY SAWS
☐ CLIPPER CONCRETE SAWS
☐ DUSTLESS MODEL HD
☐ FREE TRIAL

B2

NAME_____
ADDRESS_____
CITY_____ STATE_____

T-H-O-U-S-A-N-D-S of PADDLE STROKES GIVE *Incomparable* MIXING RESULTS— *with the* KENT *CONTINUOUS METHOD*

WRITE FOR BULLETINS Describing All 3 *KENT* Continuous Mixers

For better mixing and greater profits all facts favor KENT Continuous mixing.

52 paddles slice, cut over and back turn the aggregate thousands of times in trough of mixer before mix is discharged at a steady flow into hopper of Block Machine.

Through use of variable speed Drive, the Kent Stediflo can be set for any desired amount of mix to suit any production block machine on the market today.

Once adjusted, the machine operates automatically, releasing a man for other profitable work. Less power is required than other mixers effecting sizable current savings.

Kent Mixers are easily adjusted to the exact needs of all aggregates.

Kent Stediflo Mixers are serving the largest of block machines with complete satisfaction. Sizes are also adaptable for smaller installations, all operating on the same principle.

The **KENT MACHINE CO.** Cuyahoga Falls, Ohio

Manufacturers of CONCRETE PRODUCTS MACHINERY *Since 1925*

IDLE EQUIPMENT WASTES MONEY

A good way to get back a large part of the money you spent for equipment you're no longer using is to SELL IT.

And the best way to sell it is through the Concrete Manufacturer, the Market Place for supplies and services.

Let someone else have the benefit of equipment you can't use in exchange for hard cash you can use in other ways.

So important is the Concrete Manufacturer used equipment section that many readers (and there are over 24,000 of them—all potential buyers) turn to it first when C M arrives on their desk.

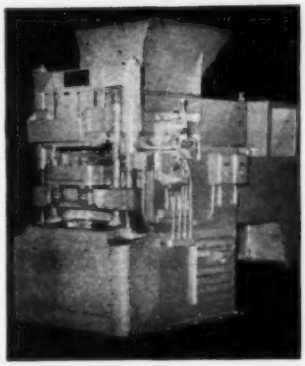
Tell us what you have to offer for sale or trade, we'll set up the ad for you. Mail today and watch the results.

THE CONCRETE MANUFACTURER, 538 South Clark Street, Chicago 5, Ill.

YOU'LL MAKE MORE BLOCKS WITH A *Columbia!*

HERE'S WHY

- PLAIN PALLETS
- VIBRATION PLUS COMPRESSION
- 4-6 AND 8 INCH HIGH BLOCKS
- 4 TO 6 PALLETS PER MINUTE
- OIL HYDRAULIC
- ANY TYPE OF AGGREGATE
- AUTOMATIC OR SEMI-AUTOMATIC



WRITE TODAY FOR COMPLETE INFORMATION!

Columbia MACHINE WORKS
105 MAIN STREET • VANCOUVER, WASHINGTON

Glove costs cut 65%

Grab-it Coated Glove

Nap Out Double Palm Glove

CASE NO. 194

Workmen regularly wore out double-palm fabric gloves handling 3000 bricks, laid without mortar in kiln floor. Same men with Grab-it Gloves now handle 15,000 bricks, reducing glove cost from 9c per thousand bricks to 3.2c. All tests showed close 5-to-1 wear ratio. Full details on request.

WORN 6 HOURS by Bricklayer's Helper

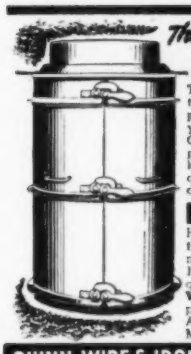
You can make comparable savings. On all work that requires a firm grip, wet or dry, on sharp cutting or abrasive materials such as concrete block, clay products, sheet metal, lumber, glass or bags, ***Grab-it*** gloves of tough, flexible, rough-surfaced natural rubber, bonded to strong fabric, far outwear heavy canvas or costlier leather — just like a tire.

FREE TEST: Write today, stating your job condition, materials handled and temperature. We supply sample gloves and complete test details to employers, without cost.

MANAGEMENT: It pays to promote better work gloves. Every dollar saved directly increases your profits — or the net income and good will of workers who buy their own.

Grab-it FIRM GRIP—NO SLIP

Edmont Mfg. Co.
554 Orange St., Coshocton, Ohio



The "Quinn Standard" FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost. **WRITE TODAY.** Complete information, prices, and estimates sent on request. Also manufacturers QUINN CONCRETE PIPE MACHINES.

QUINN WIRE & IRON WORKS 1627 12th ST. BOONE, IOWA

Now 90 LICENSED MANUFACTURERS Producing

Patented
homeward *Concrete* STEPS

A Small Investment That Pays Big Dividends

Homeward all metal forms are precision built to produce a product that requires no hand finishing.

The exclusive franchise for your territory may still be open.

For Complete Information Write
ROGER F. WILLIAMS, Licensor
3420 S. W. 9th St. Des Moines (15), Ia.

All-welded ELEVATOR BUCKETS

light • durable • quick cleaning

For maximum elevator capacity with minimum h.p. requirements, use Johnson cement and aggregate buckets. All-welded steel, with heavy-gauge lips and ends, they're light, durable, smooth for fast filling, quick cleaning. Three sizes cement: 10x6", 12x7", 14x8" . . . 3 aggregate: 10x6", 14x8", 16x8".

Long-life steel chain has carburized steel knuckles, medium carbon steel side bars, welded bucket lugs, alloy heat-treated ⅝" pins. You'll find that carburized steel parts last longer than malleable iron.

***Mail* to C. S. JOHNSON CO.** Champaign, Ill. *(Koehring Subsidiary)*

Send information on: ☐ buckets ☐ elevator chain for _____ (type of material)

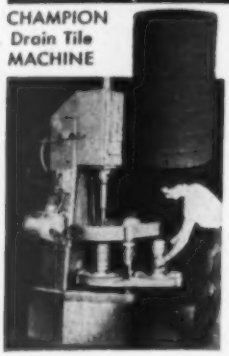
NAME _____ CO. _____
STREET _____
CITY, STATE _____ J177PO.

Advertise Your

"Wants" and Surplus Equipment

BIG PROFIT Manufacturing Cement Drain Tile

CHAMPION Drain Tile MACHINE



Farm drainage—home building—reclamation projects—highway construction. From these and other sources comes the biggest demand for drain tile in history. More local plants are urgently needed.

It's a wide-open opportunity. Either as an independent, full-time business or as a profitable addition to other concrete products.

World's Finest Tile

Champion-made drain tile are dense, strong, truly round and always uniform. No distortion, no shaling. Far superior to clay tile—worth more but can be sold for less. And still leave a handsome profit margin.

The Champion makes manufacturing easy. Pares costs. Requires no high-priced labor. Makes all sizes up to 12-inch. Yet calls for only a moderate investment.

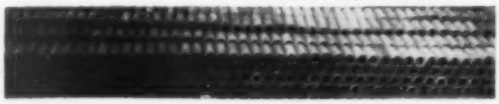
Get the Facts

Write for new Drain Tile Book. Tells about the possibilities in the drain tile business—costs of materials—selling prices—etc. Also completely describes the new Champion machine.

CONCRETE EQUIPMENT CO.

532 Ottawa Avenue

HOLLAND, MICHIGAN



LET'S GO "Commercial"

RIBBED STEEL PALLETS

for "CLOSE CLEARANCE" in making sharp-edged Concrete Blocks

"Commercial" Oval Cored Steel Pallets are made so accurately that clearance between pallet and mold box is held to 1/16", insuring sharp-edged units with high "customer appeal."

"Commercial" Ribbed Pallets are rigid and unbreakable, and give years of service without replacement.

They are the only type of steel pallets providing mortar grooves on both ends and bottom of concrete building units — your assurance of stronger bonded joints.

"Commercial" supplies the most complete line of pallets available.

This Booklet has full details →

THE COMMERCIAL SHEARING & STAMPING CO.
YOUNGSTOWN 1, OHIO

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Advertise Your "Wants" and Surplus Equipment

Interior view of Canton Concrete Brick Co. plant at Youngstown, Ohio where two Fixed Pallet Vibrapacs operate on Vibrapac Agreement Plans.

the KEY that Unlocks the Door to Greater Success in Plant Operation!

Would you like to expand your plant production facilities to meet the ever-increasing demand for concrete block . . . without adding materially to your plant investment? Then be sure to look into the Besser Vibrapac Agreement. It gives you EXTRA PROFITS from HIGHER PRODUCTION and eliminates most of the capital investment in machinery and equipment, thereby adding materially to your working capital. The production savings will more than pay for the use of your Vibrapac, assuring you of improved quality block with a continuous high rate of production.

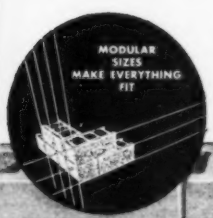
BESSER MANUFACTURING CO.

Complete Equipment for Concrete Products Plants

ALPENA, MICHIGAN, U. S. A.

Over 200 VIBRAPAC AGREEMENTS Are Now in Effect!

Just a few of the many units made on the Vibrapac.



● The BESSER Vibrapac is a fully automatic concrete block machine making all sizes of masonry units on one set of Plain Pallets.

BESSER

BATCH MIXERS | SKIP LOADERS | BLOCK & BRICK CUBERS | SUPER VIBRAPAC | AGLITE PLANTS | ACROW CENTERS | ROOF TILE MACHINE

Employers Insurance Building, Dallas, Texas. Archt. & Engr. — George L. Dahl; Gen. Contr. — James Stewart & Co., Inc.; Pozzolith Ready-Mixed Concrete Supplied by Dallas Concrete Co. — all of Dallas, Texas. Master Builders' "O.M." and Embeco Also Used In This Structure.

POZZOLITH CONCRETE

IN EMPLOYERS INSURANCE BUILDING

To a long list of outstanding structures in which Pozzolith was employed to produce better concrete, has been added the Employers Insurance Building, Dallas, Texas.

Here Pozzolith's cement dispersing, water reducing action gave the light weight concrete on steel deck, and the regular concrete for basement walls easy placeability, designed strength, low permeability and great durability.

Whatever *your* concrete requirements, they can be obtained *at lower cost with Pozzolith than by any other means.*

Full information and booklet on request.

Over 500 Leading Ready-Mixed Plants are now equipped with the POZZOLITH AUTOMATIC DISPENSER

WHY?

Because a producer can, at lower cost:

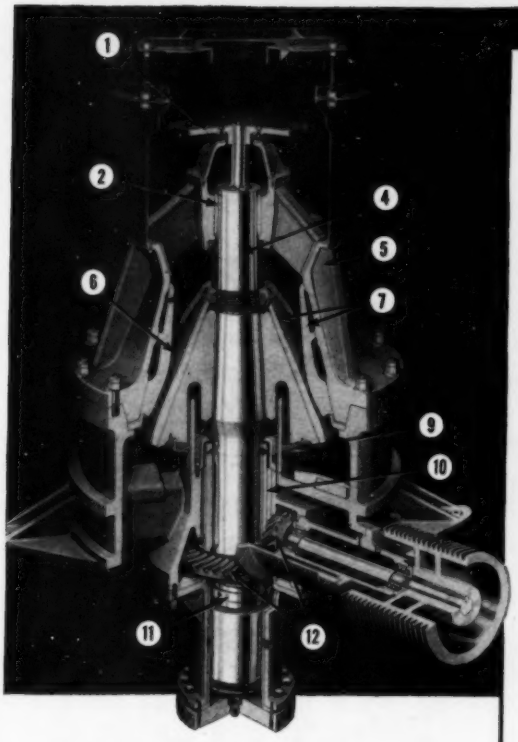
1. Produce concrete of low permeability . . . with normal Portland cement.
2. Produce high-early strength concrete . . . with normal Portland cement.
3. Produce air entrained concrete without strength loss . . . with normal Portland cement.
4. Produce all of the above properties out of one cement bin . . . with normal Portland cement — stepping up production, reducing inconvenience in handling and cutting costs.

In normal mixes, concrete of any given durability, strength and workability, is produced more economically with Pozzolith than by any other means.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — TORONTO, ONTARIO

HYDROCONE CRUSHER Gives You All These Benefits



1 **WOBBLE PLATE FEEDER** distributes feed evenly. Standard on crushers with fine crushing chambers; optional on others.

2 **SPIDER BEARINGS** are readily replaceable. Sleeve type in larger units; ball and socket bearings in the smaller machines. Lubricant is retained by an effective seal encircling the main shaft.

3 **FULLY AUTOMATIC** lubricating and oil conditioning system.

4 **SHORT HEAVY** *Hydrocone* crusher shaft has "cold-worked" finish, producing a high quality bearing surface.

5 **TOP SHELL AND SPIDER** cast in one piece. Can be easily removed.

6 **THREE TYPES** of crushing chambers available: Fine, Intermediate and Coarse, depending on the application.

7 **ONE-PIECE** inner and outer crushing surfaces are self-locking. Zincing of mantles not required on the 48-in. and smaller machines.

8 **RUBBER COMPRESSION MOUNTINGS** isolate vibration from supporting structure, eliminate need for massive foundations.

9 **ENCLOSED RING TYPE DUST SEAL** — A plastic ring impregnated with lubricant and held in place by a retaining ring. Dust is sealed from crusher eccentric by contact of the plastic ring with the outer periphery of the dust collar.

10 **BRONZE ECCENTRIC SLEEVE** is easily changeable in the field. Various eccentric throws may be obtained through the use of different sleeves, adding to the versatility of the *Hydrocone* crusher.

11 **THREE-PIECE** step bearing supports the main shaft on the hydraulic piston. *Hydrocone* crushers are designed to withstand crushing pressures much greater than those encountered in actual service.

12 **BEVEL PINION AND GEAR** are accurately cut . . . provide smooth operation and long life. Spiral bevel gears on the larger crushers.

AND — MOST IMPORTANT — *Hydrocone* crusher offers you *hydraulic control* of product size! Push-button operation on larger crushers; hand crank adjustment on smaller machines. An Automatic Reset protects crusher from tramp iron.

Capacities 10 to 1000 tph; sizes up to 84-in. diameter cone. For more facts, contact the A-C representative in your area, or write Allis-Chalmers, Milwaukee 1, Wis., for **Bulletin 07B7145B.**

A-3128

ALLIS-CHALMERS

Texrope and *Hydrocone* are Allis-Chalmers trademarks.

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Motors

Controls

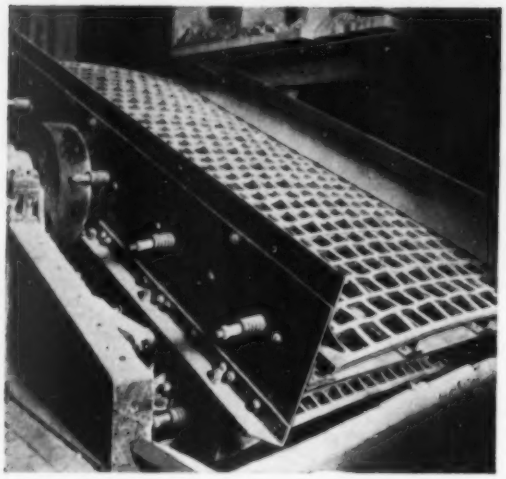
Texrope Drives

Vibrating Screens

Jaw Crushers

Kilns, Coolers, Dryers

Outstanding Advantages of Hendrick Perforated Plate



for vibrating
and
shaking screens

- It maintains uniformity of mesh throughout an unusually long service life.
- It can be supplied with any desired shape and size of perforations.
- It can be made — either flat or corrugated — in any required gauge in tank, high carbon, high tensile, and abrasive-resisting steels.
- For screening highly abrasive materials, it is heat-treated to increase its toughness.
- Its full clearance practically obviates clogging.
- The ease with which decks can be changed cuts labor costs.

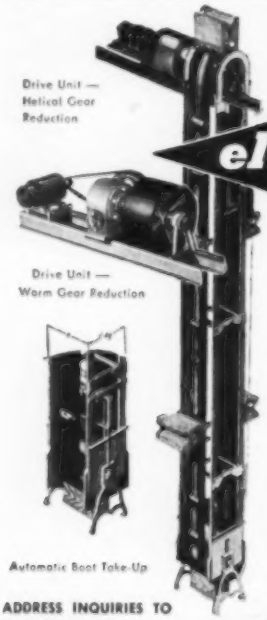
Write for copy of Hendrick Perforated Plate Catalogue

SEE OUR CATALOG IN SWEET'S

HENDRICK
Manufacturing Company

Perforated Metals
Perforated Metal Screens
Wedge-Slot Screens
Architectural Grilles
Mitco Open Steel Flooring,
Shur-Site Treads, Armorgrids

39 DUNDAFF STREET, CARBONDALE, PENNA.
Sales Offices In Principal Cities



EHRSAM employees elevator . . . saves you money

By speeding up inter-floor communication. *No waiting* — another step passes in a few seconds.

Takes up little space. Installation costs are moderate.

Handy *manual control rope* and an *automatic safety stop* guarantee safe operation.

The EHRSAM employees elevator is made in three belt widths, 12, 14, and 16 inches, and with 3 and 5 H.P. drive units. Special designs available for handling bags and boxes. Write today for more complete information.

ADDRESS INQUIRIES TO DEPARTMENT P

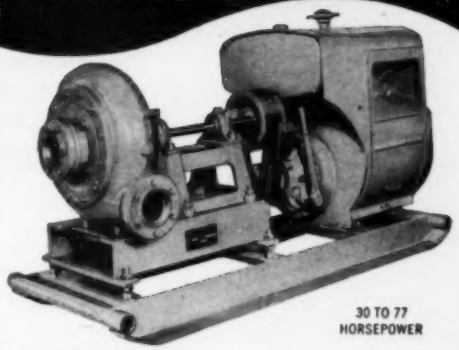
THE J. B. EHRSAM & SONS MFG. CO.

ESTABLISHED 1872 — ENTERPRISE, KANSAS, U.S.A.

Looking for Used Equipment?

Refer to the listings in this issue for a wide variety of used and surplus machinery and supplies.

NEW *Lightning* PORTABLE SAND AND GRAVEL PUMPS



30 TO 77 HORSEPOWER

SELF PRIMING... 4 AND 6 INCH SIZES

New design for a wide variety of uses and pumping conditions. 4-inch pump has 30 H.P. air-cooled engine; 6-inch pump has 6-cylinder radiator cooled engine. All wearing parts are of Hi-Chro-Hi, a super hard, abrasion resisting semi-steel. Maintenance is negligible, parts replacement is simple.

Manufacturer of Sand and Gravel Pumps — 3" to 10" Size

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KANSAS CITY HAY PRESS CO.

801 Woodswether Road — Kansas City 6, Mo.

HOMER permanent non-electric magnetic plate and pulley separators eliminate costly repairs and lost time due to tramp metal damage

Available in standard or hinged models, HOMER Plate Magnets are furnished with single or triple air gaps as required, and are built for either Sanitary or Industrial applications.

Available for light, standard or heavy-duty service, HOMERS are permanent and require no outside power source. They are not affected by atmospheric or climatic conditions.

Write for descriptive literature.

The HOMER MANUFACTURING CO., Inc.

DEPT. I-52 — LIMA, OHIO

Producers of Magnetic Separator Equipment Since 1923

ATLAS

MODERN DESIGN CONVEYING EQUIPMENT

"JUST WHAT THE DOCTOR ORDERED" for efficiently handling sand, gravel, etc.

Model #124 ATLAS Belt Type Car Unloader, unloading slag.

Mountains of material for construction highway projects are being moved every day by dependable ATLAS Machines.

Combining soundness of design with careful craftsmanship in construction, ATLAS units insure

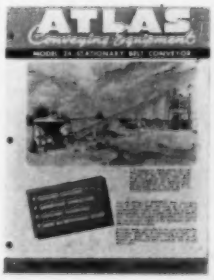
- **High capacity**
- **Smooth, quiet operation**
- **Long service life**
- **Low maintenance costs**

ATLAS Service covers the continent. Our Distributors are immediately available for consultation if you have any troublesome problems in loading or conveying.

ATLAS CONVEYOR CO.

Box 59B, Clintonville, Wis.

The ATLAS Line includes Bucket Elevators, Boxcar Loaders, Car Unloaders, Portable Elevators, Truck Loaders, Portable Belt Conveyors, and similar equipment.



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HAMMERMILLS

Built to take 6" feed and reduce to agricultural limestone, ¾" stone and other small sizes in *one operation!* Crushing occurs on unusually heavy breaker and grinding plate before reaching grate. This permits grates to be used for sizing only, minimizing wear. The result; more output, more quickly reduced at less operating cost.

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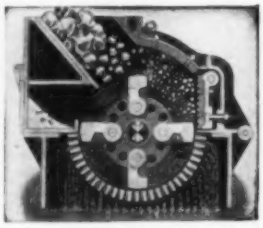

WILLIAMS ALSO MAKES...

Heavy-duty hammermills in smaller sizes for all quarry operations; impact and roller mills for 200 to 325 mesh grinding; drier mills; air separators; vibrating screens; steel bins; complete "packaged" crushing and grinding plants.

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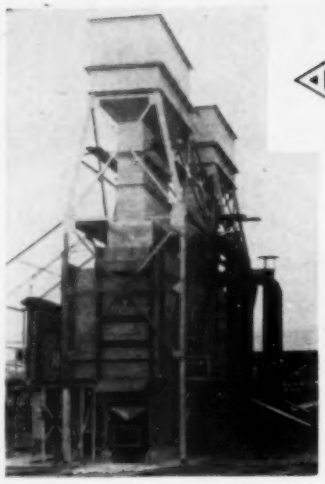
WILLIAMS
CRUSHERS GRINDERS SHREDDERS



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PREHEATS — CALCINES — COOLS
AUTOMATIC CONTINUOUS OPERATION
MINIMUM FUEL CONSUMPTION

There are extra dividends available in the operation of your plant when you use Ellerman Calciners . . . let us explain the exclusive features . . . write today for literature and detailed information applicable to your operation.

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COMPLETE EXPLOSIVE REQUIREMENTS

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Diamond Core Drilling
CONTRACTORS
Fireclays, coal, limestone, gravel deposits, all minerals. Blast hole drilling.
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Want small bulk cement plant

Griffin Ready Mixed Concrete Co.
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WANTED

Rock Crushing and Milling Manufacturer requires graduate Engineer for production work. Industrial experience in crushing and milling essential. Mechanical aptitude desirable. Applicant to include all details and salary desired in first letter.

Box No. M 2, c/o Pit and Quarry Publications
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CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
PITTSBURGH 20, PA.

WANTED

Late Model Bucyrus Erie 120B or 170B all Electric shovel, less than 4 years.

The Chas. M. Ingersoll Co.
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Superintendent Crushed Stone Plant with 17 years experience in construction and materials production desires to make change. Details upon request.

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538 South Clark Street Chicago 5, Illinois

SALES ENGINEERS WANTED

Young men for sales work by manufacturer of heavy machinery. Knowledge of crushing, milling and processing as related to mining and aggregate and cement production advantageous but not necessary. Qualified applicants afforded opportunity for rapid advancement. Give full particulars; age, education, previous experience in these industries and present position. All replies confidential. Our Sales Department has been advised of this advertisement.

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FOR SALE: 1½ yd. Speeder dragline, complete with bucket, in excellent condition. $5750; and 1 9-36 straight line Cedar Rapids screening and crushing plant, all one unit, powered by 100hp Buda motor, run one season. $6250.

MIDWEST SAND AND GRAVEL
P. O. Box 302 Sterling, Illinois

POSITION VACANT

A-1 steel and concrete designer who is also capable of designing and laying out of material handling equipment. In first letter state age, education, experience, references, and salary expected. All answers will be held confidential.

Box No. 302, c/o Pit and Quarry Publications
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WANTED

Log Washer for Sand & Gravel Plant, preferably Eagle, capable of handling at least 150 tons per hour. Good condition.

Also Scrubber for Sand & Gravel Plant, preferably a Telsmith make in 7 foot or 9 foot. Good condition. Write giving full particulars as to make, model, capacity, age, condition, price, etc. to:

DISTRICT SAND & GRAVEL CO.
P.O. Box 4671 Anacostia 20, D.C.

QUARRY CARS WANTED

15 to 20 Koppel or Easton pan type 5-yard capacity Quarry cars for 36" gauge track. Must be in good operating condition. Address reply to:

INDUSTRIAL SILICA CORPORATION
315 Stambaugh Building, Youngstown 3, Ohio

WANTED—Well qualified, capable man as Assistant Superintendent Portland Cement Mill in Ohio.

Address Box No. 207—c/o Pit & Quarry Publications
538 South Clark Street Chicago 5, Illinois

giving full particulars concerning age, experience, etc. Replies will be treated confidentially.

WANTED

2—USED 900 Ft. Conveyors, 24" or 30" wide, complete with belts, powered by 20 HP motor, 220/440 volts, 3 phase, 60 cycles.

1—USED 450 Ft. Conveyor, 24" or 30" wide, complete with belts, powered by 40 HP motor, 220/440 volts, 3 phase, 60 cycles.

MAHONEY-CLARKE, INC.
217 Pearl St., New York 38, N. Y.

WANTED

1 double deck Universal Vibrating Screen 42"x96" Type MR. Please state price, condition and where located.

Roscoe Francke Hanover, Illinois

WE WANT TO BUY
HYSTER AND CARCO TOWING WINCHES
SEND COMPLETE DETAILS
NATIONWIDE SUPPLY CO.
RAPID CITY, SOUTH DAKOTA
TEL. 204 & 2034
ASK FOR STEVE MORRISSEY

WANTED

10 x 18 Universal Road Machinery Jaw Crusher
No. 1 Sturtevant Ring Roll Mill
State price, age, serial number, location and operating condition.

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538 So. Clark St. Chicago 5, Illinois

WANTED

170 B BUCYRUS ERIE Straight Shovel
4500 Manitowoc Dragline
42 T Bucyrus Erie Drill

Box No. 206—c/o Pit and Quarry Publications
538 South Clark Street Chicago 5, Illinois

WANTED

1 #5 Austin gyrator, or one 48 or 60 inch jaw crusher. Give price, condition, location.

W. W. Wood, Bluefield, W. Va.

Keep your jobs going. Buy or rent Boilers, Oil Salamanders, Concrete Heaters (torch or hot water), etc., from E. C. A.

CRAWLER CRANES, DRAGLINES AND SHOVELS

1—3¾ yd. Mdl. K570 Link Belt Diesel Crawler Crane #2215, with 50-65-70 or 85' boom and 17'6" jib, high gantry, hydraulic controls, D17000 engine. Will handle 47½ ton. Weight 148,000#.

1—1⅝ yd. Link Belt Model K370, Ser. No. 2247, equipped with 70' boom, powered by Cat. D13000 Diesel engine.

1—1⅝ yd. Lorain Model 80, No. 10750, with 65' boom, powered by Waukesha Hesselman diesel engine.

1—1¼ yd. P&H Model 655-A, dragline and crane, Ser. 6426, powered by Caterpillar Model, D13000 Diesel engine.

1—1⅛ yd. Link Belt Model K360, Ser. No. 1959, powered by Caterpillar D13000 IDiesel engine with 65' boom Also have back hoe attachment, boom 25' scoop arm 8/9", pull shovel mast 11'9", with 1⅛ yd. dipper.

2—1¼ yd. Lorain, Mdl. 78, Ser. #11281, 10972, power Cat. D13000 diesel engines, 70 and 100' booms.

1—1¼ yd. Bucyrus Erie, Model 33B, Ser. No. 16502, gas powered, 50' boom.

1—1¼ yd. Link Belt Model K38 crawler crane, Ser. No. 1520. Powered with 4 cyl. Model WL-51-B Waukesha gasoline engine with 50' boom.

1—1 yd. Erie Gas-Air Model GA-2 combination shovel and crane, Ser. No. 10679, powered with 4 cyl. Waukesha Model WL55 gasoline engine, with 47' crane boom. Shovel boom 22', sticks 17' with 1 yd. dipper.

1—⅝ yd. Koehring Model 301, Ser. No. 84 Powered by 4 cyl. Wisconsin Model M gasoline engine with 40' boom.

2—⅝ yd. P&H, Mdl. 255A, Ser. #8243 & 5750, with Chrysler & Waukesha engines, 40' booms.

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SPECIAL CRAWLER CRANE

½ yd. Model 200 Osgood, Ser. No. 4373, powered by 8 cyl. 60 HP Chrysler Industrial engine Mdl. C-36-520, with 30' crane boom. LIKE BRAND NEW.

AIR COMPRESSORS

Portable and stationary, electric diesel & gasoline power, sizes from 2 cu. ft., 1,000 cu. ft.

BOILERS

43—Boilers, ranging in size from 6-100 H.P., portable, vertical and locomotive type, both high and low pressure, complete with all fittings, grates, base and hood. Maker—Casey Hedges, Johnston, Frick, Industrial, International, American, Erie, Hamburg, Nagle, etc.

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5—100 HP single drum Jaeger Hoists, Mdl. LST-6, powered thru torque converter with 100 HP 6 cyl. Hercules Mdl. WXLC-3 gasoline engines. Max. single line pull 31,000# to a min. line pull of 3,000# at 350 FPM. Wt. 11,500# each. LIKE NEW.
We also have a very large stock of gasoline, electric and steam hoists, single, double and triple drum.

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1—15 ton Vulcan std. ga. locomotive. Ser. No. 3903. With special MCB couplings. Powered by 6 cyl. LeRoi Mdl. JMS gasoline engine. Equipped with 4-wheel air operated brakes with 2 cyl. Westinghouse air compressor. Complete with starter and generator.

OWNER'S OFFERING

1—4' Ty-Traylor Reduction Crusher, 10" feed opening, Serial 37140, 31" P.D. 14-D groove pulley and D-315 drive belts, new 1941, as is F.O.B. cars, Greene, N. D., April 1, 1951 ..... $12,000.00

1—Lot of spare parts, almost all new, worth $8,000 offered to purchaser of above crusher only at 2,400.00

1—Robins 4 x 10 DD Vib. Screen, Serial GD-6514, as is, F.O.B. cars, St. Paul, Minn. 1,900.00

1—LeRoi 6 cyl. 6¾" x 7", 160 H.P. gasoline power unit, Serial 103998, Model M-RX-1S, Electric Starter, radiator, on skid, as is, F.O.B. cars, St. Paul, Minn. 3,000.00

1—14" Superior McCully Crusher, Serial #8467, with 10 D-Sect. V-Belt drive, including all spare parts on hand, as is, F.O.B. cars, St. Cloud, Minn. 3,500.00

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- #502-20 Roto-Louvre.
- 6' x 40' x 7/16" shell.
- 6' x 14' x ½" shell. (2 NEW)
- 7' x 50' x ½" shell.

Filters

- 8' x 10' Oliver, 250 sq. ft., wood drum.
- Sweetland, size No. 12, steel, 72 leaves.

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- 2700 barrel, complete with unloading screw, elevator and discharge gates.

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- Double 16", sectional flight screw, 39' long, all steel. 240 cu. ft.

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Heltzel 1000 Bbl. Capacity, with Undertrack Screw, Enclosed Bucket Elevator and Electric Motor. Available immediately. Good Operating Condition. Located Kentucky.

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20 - 20 cu. yd. Western End Dump Trucks (Rock Bodies), powered by Mod. HBS-6 Cummins Diesel Engines, Ready to work.

Price—each $5,000.00

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SPECIAL OFFERING

1—new 18 x 32 solid steel frame style D crusher.

1—new 14 x 26 solid steel frame jaw crusher.

1—#6 McCully crusher in good running condition just taken from service.

2—6' dia. 12 x 16' long scalping screens 2¼" manganese perforations.

A number of new manganese steel screen sections for Allis Chalmers 6' revolving screens 2¼" perforations.

New and rebuilt jaw crushers in all sizes from 6 x 10 to 42 x 60.

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LeRoi 2-stage 105 cubic foot air-cooled, skid mounted. built-in tool boxes. hose reels and hose.

Gardner-Denver air-cooled 105 foot with receiver. V-Belt driven from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.

Schramm 105 cu. ft. gas powered compresser on 4 steel wheels.

Gardner-Denver two-stage 160 ft., skid mounted.

Worthington 210 cubic foot. two-stage air-cooled. on skid base with Hercules diesel.

Pennsylvania 12" x 10" class 3A single cylinder. 355 cubic foot P.D., flat belt driven. 50 HP slip ring motor.

Worthington two-stage. water cooled. vertical 250 #. 60 CFM. new condition.

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New 18" — 24" — 30" — 36"

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Lorain 75B. 1¼-yd. shovel. diesel power.

P&H 625A 15-ton crawler crane.

Lorain 55 clam-crane. 50' boom.

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Lorain 30 combination ½-yd. shovel. hoe & clam.

P&H Model 150 ½-yd. truck crane on 6x4 Mack.

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Sanderson-Cyclone #42 well drill. new.

Sanderson-Cyclone #44 well drill. new.

Sanderson-Cyclone #40 well drill with drilling tools. excellent condition. Mtd. on K-5 International chassis.

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1036 Cedarapids. New condition.

1020 Beaumont. Reconditioned.

10 x 7 Allis Chalmers Blake type jaw crusher.

60 ton 2 compartment storage bin with clam shell gates.

Cedarapids No. 1 Kubit

Cedarapids BBB scalping unit w/1036 jaw.

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Barber-Greene 44C Trenching Machine.

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G.E. 44 Ton Diesel-Elec.—I. C. C.—Late Model.

1—Plymouth 18 Ton Diesel, Std. Ga. New 1942.
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2—Whitcomb gas, 6 ton, 24" ga.
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MISCELLANEOUS

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1—TD 14—# TDF 11872 with B.E. Bulldozer.
1—Buffalo 5 Ton 3 Wh. Roller.
1—Huber 5 Ton 3 Wh. Roller. Buckets ¼ to 2 yd.
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Browning 30 ton Steam—New 1940—#3085.

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18"	4	1/8"	1/32"
20"	4	1/8"	1/32"
20"	5	1/8"	1/32"
24"	4	1/8"	1/32"
24"	5	1/8"	1/32"
28"	5	1/8"	1/32"
30"	5	1/8"	1/16"
30"	6	1/8"	1/16"

And Other Sizes

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Equipment Values!

Motor Grader—"Caterpillar" Diesel No. 12, #9K163, leaning front wheels; four 13.00x24 tires, two 7.50x24 tires; 12 ft. moldboard, scarifier less teeth. FOB Louisville....**$8850.00**

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Roller—Sheepfoot, double drum, with 40" rolls. Nearly new. FOB Louisville.....**$1095.00**

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Tractor-Dozer — "Caterpillar" Diesel D8, #1H6072, w/12 ft. LeTourneau bulldozer and LeTourneau PCU. Thoroughly gone over by our Evansville shop. FOB Evansville, Ind. **$8250.00**

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Unit "514" ¾ yd. used shovel or crane
Osgood "200" ⅝ yd. used dragline or hoe
Jahn 15-ton used Trailer
Cleveland "DR-30" used wagon drill
Rex "27E" Paver, big drum. Ready to work
Universal No. 3 rebuilt 18x31" Pulverizer
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International "TD-14" Diesel Tractor w/Dozer and D.D. PCU
A-C "HD-7" Diesel Tractor w/Hydraulic Dozer
Caterpillar "RD6" Diesel Tractor w/LeTourneau Dozer
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Conveyor Belting—18", 24" and 30" in stock
All equipment advertised located our yard

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USED EQUIPMENT FOR SALE

1—¾ Yd. Shovel, Model 3 Northwest Caterpillar. Year Model 1929—Serial #2966. Powered with Wisconsin Gas Engine. Condition: Good — Motor Overhauled 1949. Price: $4,000.00.

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1—Electric Converter, Model FCE8 Reliance. 1½ H.P.—8 KVA—440 V. —60 Cy.—3 Phase. Condition: Good. Price $350.00.

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1—Roll Crusher, Martin 18" Style F. Condition: Good. Price: $400.00.

1—Sectional Belt Conveyor—Farquhar #346. 14" x 17' with Motor, Hopper & Discharge Chute. Condition: Good. Price: $200.00.

2—Well Drills, Loomis Model 44 Clipper Full Crawler Blast Hole, Gasoline Powered. Condition: Excellent. Price: $4,500.00 each.

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1—Well Drill, Loomis Model 1½ Clipper Blast Hole, Non-Traction. Diesel Powered. Condition: Good. Price: $1,000.00.

1—Well Drill, Loomis Model 44 Clipper Blast Hole, Non-Traction. Diesel Powered. Condition: Good. Price: $1,000.00.

1—Scale, Exact Weight Style #2225, 10# Tare Beam, Dial 25#, Under 5# Over with Dustite Bagholder. Condition: Good. Price: $200.00.

1—Chrysler Motor Type C 36-520 8 Cyl., 3¼ x 4⅝ Gasoline with Electric Starter Including $150.00 Worth Spare Parts. Condition—Good. Price: $500.00.

THOMASVILLE STONE AND LIME COMPANY
THOMASVILLE, PA.

DEPENDABLE USED MACHINES

Special. — Austin-Western 10x20 roller bearing jaw crusher, late model, welded construction.

Loran 40 shovel	Int. I-4 with front end loader	Erie 8" sand pump
Osgood 200 crane	Brownhoist 35 ton locomotive crane	Pioneer plate feeder
Bay City 25 dragline	Unused Morris 10" gravel pump	3000 lb. frost ball
Universal truck crane	Many sizes of vibrating screens	Day No. 5 hammermill
Dragline buckets, all sizes	30", 36" Ga. switches and crossings	Case L power unit

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Leahy 4x8 and 3x6 vibr. screens
Symons 3x8 double deck vibr. screens
Simplicity 6'x8' scalping screen
Universal vibrating screens, New
Hummer vibrating single deck screens
15 bucket elevators centr. discharge
Cont. elevators, 8", 12" and 16" buckets
5" stainless bucket elevator 45'
12" bucket elevators 30-60' on chain
12" bucket elevator on belt, 30'
Enclose 5" bucket elevator 50'
Standard elevator and drive chain
Perfect Discharge elev. 12"x75'
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Screw conveyors, 9" and 12"
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Gear, chain, sprockets and V belt drives
Reducers, motors, engines, silent chain
Apron and belt feeders
Jeffrey-Traylor 2-A vibrating feeder
Link Belt apron conveyor 24"x16'
Barrel elevator 500#24", electric
I-R new airhoist with trolleys, 1000#
Electric crane 20' span, ten ton cap.
Silent Hoist Barge Mover
L-B silent chain drive, 200 hp. 10" wide
Lewiston 24" x 12' gravel washer
Telsmith 5' Super-Scrubber
Buchanan type B 10"x16" jaw crusher
Acme 6"x21" jaw crusher, top eccentric
Roll crusher 18"x28", heavy duty
S-A ring type Knittel crusher, 18"
Jefferey 18"x18" coal crusher
Pulleys, gears, sprockets to 60"
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Air pressure and water tanks
Reeves drives and variable speed motors
Slip Ring motors: 15 and 25 hp.
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I-R centr. pump, 6", 1000 gpm, 288' head
2" Homelite gasoline driven pump

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BIRMINGHAM 1, ALABAMA

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17—Jackhammers

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3 phase, 60 cycle, 220 or 440 volts (* 2200 volts or higher)

HP.	Make	Type	Speed
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1200	*Cr.Wh.		240
650	Westg.	HE	350
500	Westg.	CW	350
400	G.E.	IM	514
300	*G.E.	IM	1800
250	Westg.	CW32B	900
200	G.E.	IM	600
150	Westg. (new)	CW772C	1200
125	G.E.	M6333	900
125	G.E.	M6334	720
100	Westg.	CW	600
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KW.	Make	A.C.	D.C.
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150	G.E.	440	250
150	Al.Ch.	220	125
100	G.E.	440	250
75	Al.Ch.	440	250
75	Westg.	2300	110
60	Al.Ch.	2300	110
50	Westg.	220	110
40	Cr.Wh.	220	125
40	Al.Ch.	440	250
30	Cr.Wh.	220	125
25	G.E.	440	250
20	G.E.	440	250
20	G.E.	440	125
10	Cr.Wh.	220	125
10	G.E.	440	250

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400	*Al.Ch.	ARWW(SpPf)	900
350	*Al.Ch. (new)	ARW	3600
300	*Westg.	CS	3600
300	G.E.	IE	1200
300	Westg.	CS	514
250	Westg.	CS	1800
250	L. Allis	1465	720

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7	G.E.	1800/1200
6	G.E.	18/12/9/600
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6	G.E.	1200/900
3½	G.E.	18/12/9/600
3	U.S.	1800/900
2	G.E.	18/12/9/600
2	U.S.	1800/900
1	G.E.	18/12/9/600
½	Wagner	1800/900

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230 Volts

H.P.	Make	Type	Speed
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175	G.E.	ELC11	750
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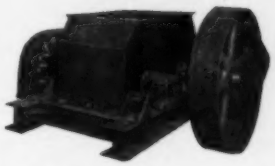

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LIMA #802 Diesel Dragline, 70 ft. boom, 2 cu. yd. dragline bucket. Ser. #1028. Swamp tracks. Rebuilt from top to bottom. Over $9000.00 new parts installed. $32,500.00.
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GRUENDLER 2-XB. Hammermill. Good. $500.00.
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Tug boat
Electric motors AC
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Chain and belt elevators
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2—Clam shell buckets

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QUINCY, MICHIGAN

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8-ton Huber 3-wheel Gas Roller
Universal-Fordson Crawler Gas Crane, ¾ yd.
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V-Belt Drive
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Excellent Condition

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2 Rex 34E Dual Drum Pavers.

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At one location: 3 XB Gruendler Hammermill, 18x36 Rogers RB Jaw Crusher, Pioneer 18x36 Roll Crusher & ¾ yd. P&H 255A Shovel. Pioneer 412VW, Telsmith & Univ. Crushing, Screening and Washing Plants.
CRUSHERS: 12x20 Gruendler Port. 18x24 Badger, 18x36 Rogers, 20x26 Univ. 24x36 Pioneer, 30x36 Traylor, 30x42 Telsmith all RB. 24x36 Pioneer, 40x48 Buchanan PB JAW. 13ft Telsmith. #26 Kennedy GYR. Pioneer 18x30, 40x22 & 54x24 DBL ROLL. 2 & 3' Symons CONE.
D8800, 13000 & 17000 Caterpillar Diesels.
Traylor 5x10, Marcy 5x12 Rod Mills.
3x35, 4x40, 6x40, 6x55, 7x50 & 9x72 Rotary Dryers.
4 yd. P&H Model 810 Dragline & Shovel Diesel.
SHOVELS: Gas—⅝ yd. Byers 83. P&H 255A, Northwest 25. Diesel—⅝ yd. Lorain L41. P&H 255A, 1¼ yd. Marion 331, 1¾ yd. Lorain 77B P&H 655A, NW5, 2 yd. Lima 701, Lorain 80 & 820, 2½ yd. Lima 802, 3 yd. Link Belt K580.
Repres: Universal Vibrating Screen Co.
Bonded Scale & Machine Co.

MID-CONTINENT EQUIPMENT CO., INC.
8321 Gannon St. Louis 24, Mo. — Wydown 2826

CONVEYORS

Belt, Bucket, Drag or Gravity
Shaker & Vibrating Screens
Truck Scales — Coal Crushers
Coal Drills — Mine Fans
Car Spotters
Electric Motors — Floor Cranes
Mining and Stripping Equipment

WHAT DO YOU NEED?

THE INDUSTRIAL EQUIPMENT CORP.
910 First National Bank Bldg., Atlantic 1-2525
Pittsburgh 22, Pennsylvania

AIR COMPRESSORS

BELTED: 253, 328, 376, 1000, 1800 & 1370 Ft.
ELECTRIC: 207, 1305, 1732, 2850, 3170 & 3702 Ft.
DIESEL: 105, 315, 420, 500, 603, 907 & 1600 Ft.

CRANES — DRAGLINES — SHOVELS

6—Elec. Shovels, 17, 10, 8, 4, 2 & 1 Yd.
4—Walker Draglines, 3-6-6-10 Yd.
3—25 & 40 Ton 120 Ft. Boom Whirleys.
7—Loco. Cranes 20, 25, 30 & 40 Ton Diesel & Steam.
6—Diesel Shovels & Cranes 1 to 5 Yd.

DUMP CARS

46—KOPPEL, 1½ Yd., 24 & 30 & 36 & 42 In. Ga., V Shaped.
115—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
60—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.

BALL, ROD & TUBE MILLS

5'x22", 6'x22", 6'x48", 8'x22" & 8'x36" Hardinge Conical Ball Mills.
3'x3', 4'x3', 4'x4', 5'x4', 6'x4', 6'x6' & 7'x8' Cylindrical Ball Mills, Marcy, Allis Chalmers, etc.
2x8, 4x8, 5x12 & 7x12 Rod Mills.

PULVERIZERS

6'x22" & 6'x48" Hardinge Air Classifying.
Giant Griffin Mill, Kent Maxecon Mill & Style G Mill.
Nos. 1, 1½ & 2 Sturtevant Ring Roll.
Bradley Hercules Junior.
No. 0 & No. 1 Raymond Automatic Pulverizers.
No. 50 & No. 53 Raymond IMP

SEPARATORS & CLASSIFIERS

4', 6', 14' & 16' Air Separators, Sturtevant & Gayco.
6' x 14' Hardinge Counter Current Classifier.
24", 30", 48" & 72" Spiral Classifier.
Thickeners 14' to 30'.
Dorrco 4 Pocket Sizer & Several Rake Classifiers.

BLAST HOLE & WELL DRILLS

Bucyrus Erie 27T, 29T & 50
Loomis 44, Keystone 51 & 71
2—I. R. Quarry Master Drills
10—IR—PM3—Wagon Drills

JAW CRUSHERS

Blake Type—9x16, 10x20, 12x24, 13x24, 13x30, 18x30, 16x30, 24x36, 26x42, 40x48, 60x42, 84x60, 42x48 & 58x36.
Single Shaft Type—9x16, 10x16, 11x18, 8x36, 10x30, 15x24, 18x30, 10x36, 15x36, 18x36, 20x36, 24x36, 10x42, 30x42
Cam & Roller Type—8x10, 6x20, 10x16, 10x20, 10x26, 11x16, 12x16, 12x22, 12x24, 13x26, 11x24, 11x28, 13x24, 14x26, 14x28, 15x30, 18x32, 9x40, 24x40, 22x50

REDUCTION TYPE CONE CRUSHERS

Allis Chalmers 322R Newhouse 5', 7' & 10'
Symons 2', 3', 4' Std., 5½' Short Head Tels. Gyro 24", 36" & 4' Short Head
Traylor 1'6", 2'6" TY No. 12 RR, 36", 48" TS
Kennedy 19-S, 25-S, 37-S, 49-S

PRIMARY TYPE GYRATORY CRUSHERS

Allis Chalmers K&N No. 3, 4, 5, 6, 7½, 8, 9, 12
Superior McCully 15", 20", 30" and 42"
Austin No. 5, 4, 10S, 10T, 8
Traylor Bulldog 13", 14", 16", 20", Tels. 10S, 13S

STEEL DERRICKS

GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

ASPHALT & OIL TANKS

15—8000, 10000 and 20000 gal. cap. with coils.

RAILROAD CARS

100—8000 & 10,000 gal. cap. Tank Cars.
100—50 Ton & 70 Ton Battleship Gondolas.
80—50 Ton Cap. Flat Cars.
10—Side Dump covered, 70 ton Hopper Cars.

LOCOMOTIVES

DIESEL: 18, 30, 45, 65 & 100 Ton.
GASOLINE: 3 Ton, 8 Ton, 9 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 40 Ton, 45 Ton, 60 Ton & 80 Ton.
ELECTRIC: 3 Ton, 5 Ton, 9 Ton, 17 Ton & 40 Ton.

HAMMER MILLS

JEFFREY 30 x 24 A, 36 x 24 & 36 x 42 B
SIEDMAN 20 x 12
WILLIAMS No. 15 SLUGGER & 60 GA.
GRUENDLER 2-XB — 3-XB & 6-XC
DIXIE—5040 MODEL 2424, 3630 & 3650 PREMIER
PENNSYLVANIA CA-3-28 & C-7-28 Impactors and BXT-11 & 13

ROTARY DRYERS — KILNS

70" x 35' Ruggles Coles XHD Indirect.
Double Shell: 48"x20', 80"x45', 96"x70', & 104"x85'
Direct Heat: 3'x20', 4'x40', 4½'x40', 5'x24', 5'x30', 5'x50', 6'x25', 6'x60', 80"x50', & 100"x60'
Kilns: 4½'x30', 6'x50', 6'x80' & 9'x170'

CONVEYOR BELTS

6600 Ft. 36, 42, 48 & 60 In. Wide

SCREENS

VIBRATING: 3x6, 3x8, 3x5, 4x5, 4x8, 4x10, 4x12.
HUMMER, NIAGARA & ROBINS, LINK BELT.

DIESEL GENERATORS

4—100 KW G.M. 2/60/220/440 V.
2—60 KW International 3/60/220 V.
2—50 KW Superior 3/60/220 V.
3—74 KW Caterpillar 3/60/220/440 V.
1—190 KVA Baldwin DeLaverne 3/60/440 V.
1—New 600 KW American 3/60/480 V.
1—300 KW Chgo. Pneu. 3/60/2300 V.
1—300 KW F.M. 3/60/2400 V.
1—432 KVA Worthington 3/60/2300 V.
6—230 Volt Direct Current 50 to 800 KW
1250 KVA Nordberg 3/60/2300

R. C. STANHOPE, INC.
60 E. 42nd St. — New York 17, N.Y.

FOR SALE

3000 CFM Ing. Rand compressors new '42
10 Koppel 5 yd. Quarry cars 56½" ga.
65 ton Atlas diesel-elec. locomotive
25 ton American loco. crane new '42
20 yd. Koppel air dump cars. Std. ga.
2 yd. Lorain 820 dragline. New '48
1 yd. Manitowoc 1500 Speedcrane
100 KW Caterpillar D17000 diesel gen.

MISSISSIPPI VALLEY EQUIPMENT CO.
507 Locust St. — St. Louis 1, Mo.

REBUILT "LIKE NEW"
LIMA "750"
CRANE - DRAGLINE

Extensive repairs include:
New Buda diesel engine—New tracks — Entire truck assembly completely rebuilt. Upper deck including drum assemblies, swing assemblies, crowd and propel assemblies, boom assemblies as well as boom hoist, fairlead and boom HAD ALL WORN PARTS REPLACED. It couldn't be "nearer new" and still be a used machine!

Carries NEW MACHINE guarantee by a reliable distributor.
CRAWLER LGTH. 16'—3" with 36" TREADS
ANY BOOM LGTH. UP TO 120 Ft. plus 25 Ft. JIB BOOM

OSGOOD "50"
BRAND NEW-NEVER USED

¾ cu. yd. clamshell, crane, dragline, shovel; powered by Buda 48 H.P. gas engine. Equipped with 30 ft. boom and ⅜ cu. yd. shovel attachment.

PRICE 20% OFF LIST

WARCO GRADER
"ALMOST BRAND NEW"
Used only 15 hours for demonstration

Powered by 76 H.P. diesel engine, tandem drive, hydraulic steering, 12' mouldboard assy., lights, cab, cab heater and defrosters.

PRICE 25% OFF LIST

BOEHCK EQUIP. CO.
2404 W. Clybourn St.
Milwaukee 3, Wisconsin

FOR SALE

1948 International I-4 equipped with Hough Loader.

3640 Dixie Hammermill equipped with 650 Morphy Diesel Engine, 900 x 20 tires.

New ¾ Clamshell bucket.

3 in. Suction Pump equipped with Wis. gas engine.

T-D 40 Crawler Tractor completely rebuilt.

6 x 6 explosive storage house.

HI-TEST STONE COMPANY
216 E. Illinois Ave. Morris, Illinois

FOR SALE

SYNTRON VIBRATOR, TYPE F-55, SERIAL #B9F81598 440 & 220 Coils with Control Box.

RALPH ROGERS & COMPANY, INC.
720 Argyle Ave., Nashville, Tennessee

SAND—GRAVEL—75 ACRES

Fully equipped plant for washing, crushing, sorting; 3 sizes washed stone, 2 sand, drag-line, crushers, barrel shaker screens; washer, loader 4 bins tiple; gasoline shovel; bulldozer, 60 ft. depth, very little waste; on main highway; city 45,000; excellent location; doing $7000 month; price reasonable.

THE APPLE COMPANY—BROKERS
1836 Euclid Avenue Cleveland, Ohio

FOR SALE
COMPLETE PORTABLE ROCK CRUSHING AND SCREENING PLANT
Good Operating Condition
Immediate Delivery

Principal Items in Plant

1—4½' Symons Cone Crusher powered with an LP601 Cummins Diesel engine, 250 HP, mounted on a heavy 3-axle pneumatic tired chassis. This unit is also equipped with a 2-stage compressor with electric motor for starting.

1—36" Telsmith Cone Crusher powered with a UD-18 International Diesel engine, and equipped with a Symons 4' x 12' double deck vibrating screen powered by electric motor. This unit is also equipped with a bucket return elevator and an under-crusher conveyor, both powered by electric motors. The entire Telsmith unit is mounted on a heavy 3-axle pneumatic tired chassis.

1—3' x 6' Symons Screen, single deck, type F.

1—Caterpillar D13000 Diesel generating set, 75 KW capacity, mounted on 2-axle pneumatic-tired chassis. This unit is built over for weather protection. For use in conjunction with the generating set, there is also a 2-wheeled pneumatic-tired trailer equipped with a 7 unit switchboard for central control.

3—Portable conveyors, 30" x 52', powered with electric motors.

1—Portable conveyor, 29" x 40', powered with electric motor.

1—21 cubic yard bin.

Approximate Capacities in Gravel Pit with 60% Crushing Required From 10" to 2", 200 tons per hour—From 10" to 1", 150 tons per hour.

Full Information on Request

Brown-Bevis Equipment Co.
4900 Santa Fe Avenue
Los Angeles 58, California

FOR SALE

New 48" x 14' Heavy Duty Kennedy Feeder with 15 H. P., 3 Phase, 60 Cycle, 220/440 Volt, 1200 R. P. M., T. E. F. C. Motor—Eastern Pennsylvania.

Box No. 306, c/o Pit and Quarry Publications
538 South Clark Street Chicago 5, Illinois

Jaw Crushers—4"x8" up to 24"x36".
Crushing Rolls—12"x12" up to 54"x24".
Gyratory Crushers—No. 5, up to No. 12.
Ring Roll Mills—No. 0, No. 1, and No. 2.
Swing Hammer Mills.
Rotary Fine Crushers—Nos. 0, 1, 1½ and 2.
Direct Heat Rotary Dryers—3½'x25', 4'x30', 5½'x40', 7'x50'.—6x60—6½x60.—new & rebuilt.
Semi-indirect heat Dryers—70"x35', 80"x45'.
Cement Kilns—3" up to 6½" diameter. New & rebuilt.
Hardinge, Marcy & Fuller-Lehigh Mills.
Raymond Mills—Nos. 00, 0, 1, 4 Roll.
Tube—Rod and Ball Mills—3' to 6½' diameter.
Vibrating Screens—Air Separators.
1—Complete Lime Hydrating Plant.

W. P. HEINEKEN
50 Broad Street, New York
Tel. Whitehall 4-4236

PRICED TO SELL

AIR EQUIPMENT: Two stage compressor, heavy duty air hammers, assorted air tools.

ALL LIKE NEW

MERRILL ENGINEERING COMPANY
Box 4286 Jackson, Mississippi
Phone 3-2663

FOR SALE

1—Traylor gyratory crusher—Type TY 1'8" with extra set of mantles. Very good condition.

1—Bonded Cinder crusher. Brand new. Never been used.

1—Dunn mixer. New drum, new paddles.

BATTLE CREEK CONCRETE PRODUCTS CO.
1002 Emmett St. Battle Creek, Mich.

18,000 & 10,000 Gal. Storage Tanks
25 Ton Diesel; 30 Ton Steam Loco. Cranes
250 HP 440 V. 900 RPM Sq. Cage Motor
600 HP (2) NEW Sq. Cage & S. Rg. Motors
9'x36" & 5'x24" Screen & Crushing Plants
6'x40' Louisville Rotary Dryer—excellent

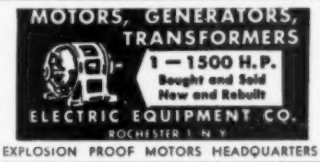
H. & P., 6719 Etzel, St. Louis 14, Missouri

FOR SALE

Insley K12 Dragline, Austin Western 15 x 20 roller bearing jaw crusher. 4 x 8 diester vibrating screen, with motor. Hopper & Feeder with motor. 60 ft. x 18" Belt conveyor with motor.

Above equipment is now in use and in A1 condition.

C. F. POEPPELMAN SAND & GRAVEL
Versailles, Ohio Res. Phone 357-M



EXPLOSION PROOF MOTORS HEADQUARTERS

NOTICE

THE LATEST CLOSING TIME FOR ADVERTISING TO APPEAR IN THE BROADCAST SECTION OF THE MARCH ISSUE IS FEBRUARY 21.

Send Your Ad Copy to . . .

PIT AND QUARRY
538 S. Clark St., Chicago 5, Ill.

Clip your Ad copy to this handy order form and mail to--

ADVERTISING RATES
Rates Per Inch Per Issue

Space (inches)	1 Issue	6 Issues	12 Issues
3- 1	$7.50	$7.25	$7.00
4- 8	7.25	7.00	6.75
9-14	7.00	6.75	6.50
15-19	6.75	6.50	6.25
20-30	6.50	6.25	6.00

CLOSING DATES
Publication date is the 1st of the month; closing date is the 15th of the preceding month.

BROADCAST SECTION — Pit and Quarry
538 South Clark Street, Chicago 5, Illinois

Please insert the attached advertising copy in the next issue of the Pit and Quarry BROADCAST SECTION, to occupy ..... inches of space.

Names .....

Company .....

Address .....

City ..... **State** .....

Tell us what you have to offer and we'll set up the ad for you.

IT *Pays* TO ADVERTISE IN PIT & QUARRY'S BROADCAST SECTION

ELECTRICAL MACHINERY

Motors and Generators, A.C. and D.C. for sale at attractive prices. New and Rebuilt. All fully Guaranteed. Send us your inquiries.

V. M. NUSSBAUM & CO., Fort Wayne, Ind.

RELAYING RAIL

TRACK ACCESSORIES

Midwest Steel Corporation

CHARLESTON 21, W. VA.

KNOXVILLE, TENN. - PORTSMOUTH, VA.

FOR SALE

1—1½ yd. Sauerman slackline, complete. This outfit consists of bucket, hoist, 100' mast, roller bearing blocks and carriage, trackline and guys.

E. AND T. BURNSIDE COMPANY
Columbus, Indiana

LOCOMOTIVE:

30 ton Davenport oil fired steam, standard track gauge. **Arnold Hughes Company, 765 Penobscot Bldg., Detroit, WOodward 1-1894.**

24 x 36 FARRELL 14B JAW CRUSHER

$6500.00 NORTH CAROLINA

DARIEN CORPORATION

60 E. 42nd St., New York 17, N. Y.

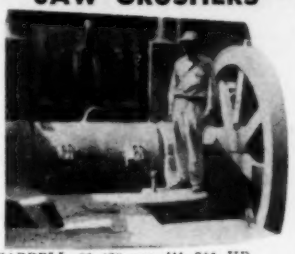
WANTED

National organization with over 20 plants, desires graduate engineer for position as Assistant Plant Manager following a period of approximately one year or less as Plant Engineer to establish himself and Plant Engineering Department. Experience in gypsum, lime or cement preferred, but not required. Plant is integrated from raw materials (quarry) to finished product, employing approximately 275 people. Submit full details, including salary required, to:

Box No. 211, c/o Pit and Quarry Publications

538 So. Clark St., Chicago 5, Illinois

JAW CRUSHERS



FARRELL 60x42" new '41 200 HP G.E. Motor	$39,000
FARRELL 24x13", 36x10" & 54x24" rolls	Offers
TRAYLOR TY 2' 4" Fine Reduction Crusher	4,500
NEWHOUSE #7 Allis-C. Style B 4"	4,500
#5 & #7½ McCULLY Gyratory Cr. M. D.	$12-16,500
Superior McCULLY Gyratory Cr. Good condition	39,000
Sec. Cedar Rapids 30 T. per hr. like new	9,750
DREDGES — ALL KINDS	
Portable & Stationary 16", 12", 10" & 8"	8,950 up
ENGINES, DIESEL & GAS — GENERATORS	
150 HP HERCULES at 1800 DWXDS like new	950
500 HP G.M. 720 RPM, like new M. s-268A	5,000
1000 HP G.M. like new M. 2-567, 800 RPM	11,000
500 HP KERMATH Mod. VV 12 Cyl. 5¼x6 bore	1,000
1600 HP PACKARD Mod. V12, new gas	3,000
LEROI WEST Gas, KVA M. 382, NEW	1,250
200 KW Gen. AC 3/60/440 DC 2 G.M. Dig	7,000
35 KW IDEAL Gen. new 220-110 complete	1,850
50 KW SUPERIOR Gen. Mod. A6 complete	1,950
AIR COMPRESSORS	
I.R. 638 CFM Imp. Type 10 XRB2 Dup.	3,800
I.R. 400 CFM 40-60# '41 100 HP Syn.	1,950
SULLIVAN 160 CFM 100# psi, Mod. WG6	1,500
GARDNER 450 CFM 100# psi, 2 stage	1,450

EVEREADY SUPPLY CO — E. J. McCallum, Jr.
805 Housatonic Ave. 4-9471
Bridgeport, Connecticut

N. W. Model 6—1¼ yd.—N. W. Model 80—2 yd. Lima 1201 Cummins engine—3 cu. yd. Shovels—¾ yd. combination—others.
Four Super C Tournapulls—Euclid Trucks—Locomotives—Dump cars—Cranes. 6—Hot Dump Euclids. Rotary Kilns—Dryers—10' x 90'—10' x 170' others. 250 KVA—440 volt—G. E. Diesel Generator Set—Like new.
36" x 48" Allis Chalmers Jaw Crusher.
48" Gyrosphere Crusher — Gyratory Crushers — Roll Crushers—Cone Crushers—Jaw Crushers—60" x 42"—25" x 40" R. B.—24" x 36"—20" x 36"—18" x 36"—15" x 36"—10" x 36".
Complete crushing plant including 42" x 36" Jaw—others.
Rod Mills—Ball Mills—Feeders—Classifiers—Tuggers—Mine Hoists—Motors—Transformers—Conveyors—Portable Gravel Plants—Blast Hole Drills.
5040 Dixie Mogul Hammer Mill—D-13000 Caterpillar Engine.
Many other items.

STANLEY B. TROYER
Theatre Building Crosby, Minnesota

THE STATE OF NEW HAMPSHIRE

OFFERS FOR SALE ROCK CRUSHING PLANT EQUIPMENT (used) located at the State Prison, Concord, N. H., consisting of: 1 Kennedy Gearless Crusher #37 with 50 H.P. Motor, 3 H.P. Induction Motor, Screens and Bins; 1 Farrel Bacon Crusher, Style "E", with 100 H.P. Induction Motor; 1 American S & W Tramway, approximate length 2440 ft. with towers, buckets, 1" and 1½" cable and loading hopper; 1—250 ft. 17" Conveyor with supports; 3—100 ft. steel frame conveyors; several thousand feet of cable and guy wires; Miscellaneous derrick fittings and boiler shell scale boxes; 1 Sullivan Air Compressor 9 x 8, Class WG 6, with 25 H.P. Induction Motor; 1 Double Drum Hoist with 30 H.P. Motor; 1 Triple Drum Hoist with 15 H.P. Motor; 1 Single Drum Hoist with Motor; 1—3 H.P. G. E. Motor and Watson Flagg Gear Reduction Motor; 1—3 H.P. G. E. Motor; 1—15 H.P. G. E Induction Motor; 1—7½ H.P. Fairbanks Morse Induction Motor; 1—10 H.P. Westinghouse Induction Motor.

Bid Form #RCP may be obtained upon request at office of Director of Purchase and Property, State House, Concord, N. H. This form contains details of equipment offered, inspection dates, and conditions of sale, *and must be used in submitting offers.*

Bids close 10:00 A.M. Feb. 28, 1951.

Harold Cheney,
Director Purchase and Property,
State House
Concord, New Hampshire

WANTED

CEMENT PLANT SUPERINTENDENT to take charge of the operations of a cement plant in Eastern United States. Should be capable executive as well as competent engineer. State age, experience, references, and salary expected.

Write Box No. R 6, c/o Pit & Quarry Publications

538 S. Clark Street, Chicago 5, Illinois

FOR SALE

1 Cedarapids 40x24 secondary roll crusher unit including 4x12 DD vibrating screen, conveyors, etc., semi-trailer steel truck with tandem rear axle, air brakes, powered by Murphy Diesel ME6, excellent condition, ready for operation. Attractive price.

RUFFRIDGE-JOHNSON EQUIPMENT CO., INC.

250 10th Ave. S

Minneapolis - - - Minnesota

GEneva 0387 - 0388

LIMA MODEL 802

Combination Shovel, Clamshell Dragline, 40" treads, 50' boom with 20' insert. Caterpillar D17000 Engine, 2 cu. yd. shovel dipper. New October 1945. Location New York. Priced right.

Inquire Box #307, care of PIT AND QUARRY

538 So. Clark St., Chicago 5, Ill.

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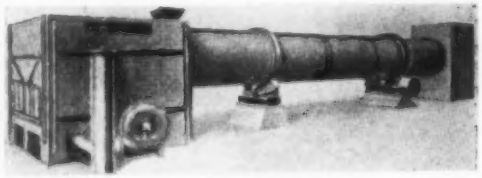

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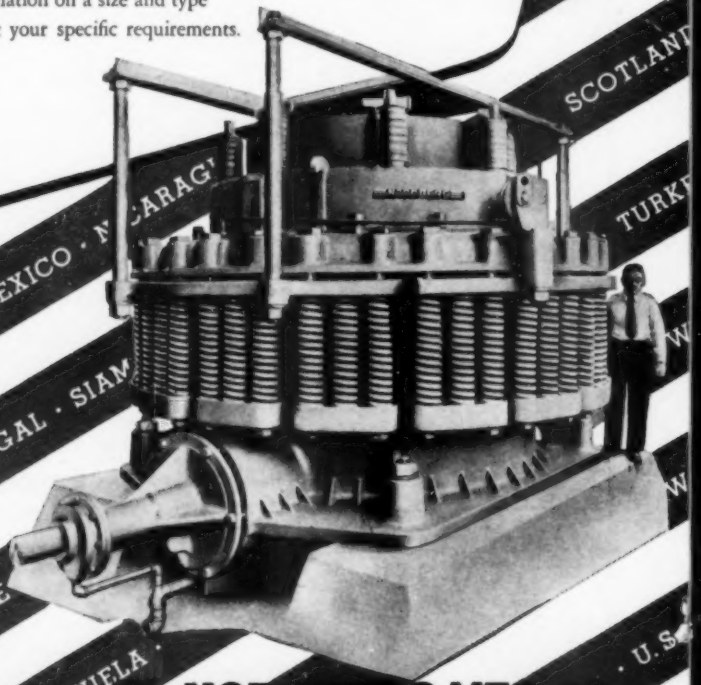

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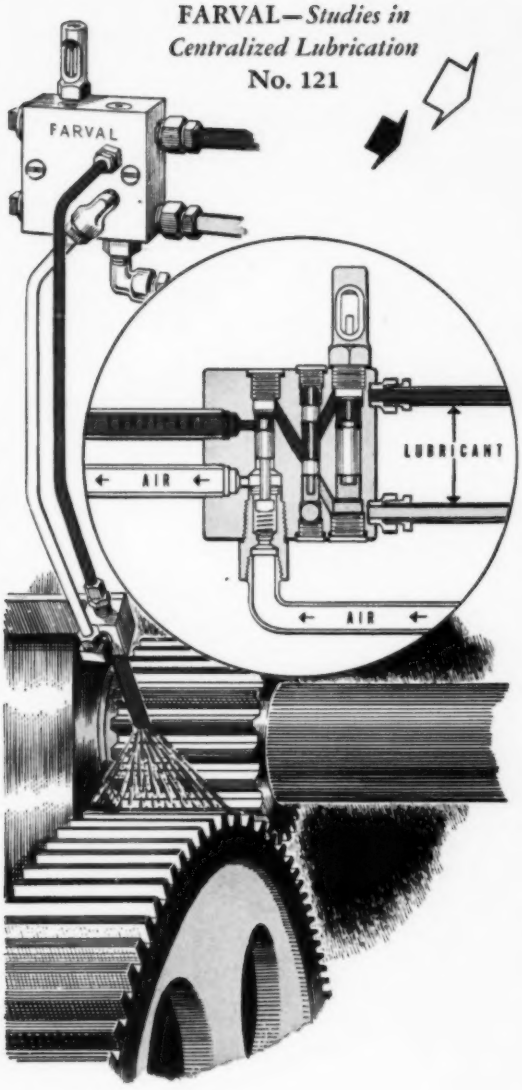

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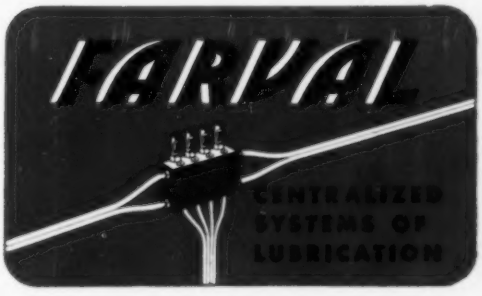

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